

Do Acquisitions Affect R&D Intensity?

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Abstract

We look at the effect that acquisitions have on R&D intensities of acquiring firms. Prior research has advanced many ideas why the intensities would increase, decrease or not change as a result of an acquisition. We study a group of firms that make acquisitions only infrequently, hoping that the effect of the acquisition can be isolated easier. To see the effect of acquisitions on R&D intensities we use a difference-in-differences estimator where the treatment firms are those that actually acquired other firms and a control group of firms that announced they were acquiring other firms but the deal was not finalized and the reason it fell through was unrelated to R&D policies of either acquirer or the target firms.

We find that the R&D intensities do not significantly increase or decrease for firms in general. The size of acquisition appears to matter as large firms frequently increase intensities. This suggests that large companies may purchase knowledge as opposed to developing it in house. R&D intensities appear to be influenced by whether the acquirer is a member of an industry that is engaged in a lot of research. Often being a member of a research intensive industry appears to be a factor but it is always combined with another attribute of the firm. On the other hand, whether the acquisition is in a related industry or whether it is a public firm or private firm does not seem to matter in regards to future R&D intensities. Cross-border acquisitions increase R&D intensities of the acquirers while domestic deals do not change these intensities. Moreover, R&D intensity increases after an acquisition when the acquisition occurs in a R&D heavy intense industry and the income level of the two countries are similar and also when the cultural distance between acquirer and target countries are high. The increases in R&D intensity show up when the acquirer is not an American.

Keywords: M&A transactions; R&D intensity; firm size; target status; industry relatedness; cross-border acquisitions; country income level; cultural distance

EFM Classification Codes: 160; 220; 630

1. Introduction

The purpose of our study is to examine whether firms increase or decrease their research and development (R&D) expenditures after an acquisition. In particular we focus on changes to their R&D intensity (R&D/Assets or R&D/Sales) as a result of an acquisition. In addition to studying the general pattern for all acquisitions, we analyze special subsets of the data to see the effect of acquisitions on R&D intensity for these firms.

R&D is extremely important for many firms and industries in the economy. Often firms flourish or die as a result of their successes and failures of their R&D efforts. It is also a major factor to both the growth and overall wealth of countries. Thus, it is important to carefully study both the resources devoted to discovering new products/efficiencies as well as the successes of those efforts (the inputs and outputs). We study the inputs.

There has been some prior research in this area. Hitt et al. (1991) find that acquisitions led to both lower R&D intensity and patent intensity. Desyllas and Hughes (2010) report the R&D intensity of the acquirers initially decreases and then subsequently increases. Szucs (2014) observes that R&D intensity of the acquiring firms drops after a merger. Szucs reviews prior studies of which many have very small samples. He finds that there is support for all outcomes (positive, negative, and no change) between acquisitions and R&D intensity. He concludes that overall there appears to be a weak negative association between M&A and R&D. Seru (2014) observes that the outputs (patents and novelty of inventions) is reduced as a result of acquisitions relative to a sample of failed (not completed) acquisitions.

There are several problems involved in comparing the R&D intensities both before and after an acquisition. For instance, it is unknown what would have been the R&D intensity had the acquiring firm not actually acquired the target. Researchers have tended to use control firms to represent the

firms that did not actually acquire any firms. The major problem (which is fraught with endogenous selection issues) is with selecting proper control firms. As a result some researchers like Seru (2014) have used a difference-in-differences estimator to estimate the corresponding effect. This approach compares the before and after R&D intensities for two groups of firms: (1) treatment group of firms that actually acquired other firms and (2) group of firms that tried to acquire other firms but failed (control group).

Our research findings can be summarized as follows: If one looks at all acquisitions in general, R&D intensities don't change as a result of an acquisition. Related vs. unrelated and private vs. public acquisitions do not seem to influence the R&D intensities. The size of an acquisition appears to matter, as large firms frequently increase intensities. R&D intensities appear to be influenced by whether the acquirer is a member of an industry that is engaged in a lot of research. Cross-border acquisitions increase R&D intensities of the acquirers while domestic deals do not change these intensities. Often being a member of a research intensive industry appears to be a factor but it is always combined with another attribute of the firm. We find that the comparison of income levels between the acquirer and target, the cultural distance between the countries of acquirers and targets and the location of the acquirers all play a role in explaining R&D intensities of the acquirers after acquisitions.

The rest of the paper is organized as follows: In Section 2 we develop our hypotheses and in Section 3 we present our data and design. In Section 4 our findings are given and in Section 5 conclusions are offered.

2. Hypothesis Development

There are many reasons why R&D intensity might increase, decrease, or remain the same after an acquisition. We first summarize the arguments for all three possibilities, then state our overall hypothesis and then develop hypotheses for specific cases.

2.1 Why R&D Intensity Might Increase

Many authors argue that acquisitions often occur for technological reasons (Bena and Li, 2014 and Kaplan, 2000). The acquirer hopes to use the research capabilities and skills of the target firm to produce new products or to manufacture existing products more efficiently. Bena and Li (2014) find that acquirers often have many patents but low R&D expenses while targets have the opposite pattern. It might be expected, therefore, that some acquisitions result in increased R&D intensity for the acquirer, especially in the early years after the acquisition when new product development or new efficiencies are being developed or adapted.

Neoclassical theories suggest firms would undertake acquisitions to make better use of underutilized assets (Arikan et al., 2016). If that were the case R&D intensities of the acquirers might well increase. Phillips and Zhdanov (2013) propose a model where small firms are often the innovators and then are bought out by larger firms while larger firms purchase successful innovations instead of developing them. In this scenario the R&D intensity for the acquirer might increase initially as the acquirer is adapting the newly purchased R&D.

2.2 Why R&D Intensity Might Decrease

Fulghieri and Sevilir (2011) argue that acquisitions often have a negative effect on innovations by reducing employees' incentive to innovate. After the acquisition there are fewer firms in the industry and this could lead to less bargaining power for the employees and smaller expected rents.

As a result, employees may reduce their effort to innovate and this will probably lead to less successful innovations. Employers may respond by cutting R&D budgets.

A number of researchers have stressed some of the undesirable outcomes from acquisitions (Porter, 1987). Chaudhuri and Tarbizi (1991) discuss that problems due to integration may be worse than expected. Every effort must be made to keep the key employees of the target company and develop an atmosphere in which these employees can flourish. Roll (1986) suggests that acquirers may overestimate the benefits of acquisitions and thus overpay for them. If acquisitions lead to lower than expected profits, managers may try to cut down on expenses such as R&D in an effort to avoid losses or lower than expected profits. This problem may be especially acute in environments where managers are focusing on short-term profits. Finally, acquisitions may lead to greater risk aversion on the part of managers of acquiring firms (Kor, 2006). This may, in turn, lead to less R&D.

2.3 Why R&D Intensity Might Stay the Same

Firms can sell off undesirable assets if they find out that an acquisition is not working out. Managers of acquirers are therefore not stuck with a bad acquisition. Maksimovic et al. (2011) find substantial restructuring after acquisitions.

Agency theories predicts that older firms make many acquisitions to the benefit of managers and not stockholders. Those acquisitions would not, in general, increase the R&D intensities of acquirers.

Even though managers can, in theory, change R&D budgets, they often don't. R&D budgets tend not to vary widely (Hall, 2002). Salaries often make up the bulk of R&D expenses and these tend to be relatively fixed. Companies also do not want to see their leading scientists find employment in a competitive firm.

2.4 Statements of Hypotheses

Our first hypothesis deals with the research intensity of all the acquisitions in our dataset. As was just discussed, there are compelling arguments both for and against an increase in R&D intensity and thus we do not have a solid prediction based on theory. For formal purposes, we will state the hypothesis in the affirmative (R&D intensity will increase).

Hypothesis 1:

After an acquisition, the R&D intensity of the acquiring firm will, on average, increase.

The rest of our hypotheses concern specific cases. Our second hypothesis deals with firms in research intensive industries. We define a research intensive industry as one where the average intensity of the firms in the industry is at least 1%. We conjecture that a primary reason for acquisitions by existing research firms is to acquire research and this should lead to an increase in R&D intensity as firms probably devote additional resources to adapting the new research to the acquirers' products.

Hypothesis 2:

After an acquisition, the R&D intensity of acquiring R&D intensive firms will, on average, increase.

Our third hypothesis involves the size of the acquirer. Following Phillips and Zhdanov (2013) we propose that many large acquirers will purchase R&D (as opposed to developing in-house the R&D) and this will likely cause an increase in their R&D intensity as they will probably have to use resources to adapt the product/technology to the specifics of their firm.

Hypothesis 3:

After an acquisition, the R&D intensity of large firms will, on average, increase.

The next hypothesis relates R&D intensities to related and unrelated acquisitions. We define a related merger to be one if both the target and bidder are in the same two digit SIC code. We realize there are many reasons for and against why an acquisition might be expected to increase the R&D intensity of the acquirer. We conjecture that many firms that buy assets of another firm in a related industry do so to acquire knowledge. This in the short-run, should result in greater R&D intensities for the acquirer¹.

Hypothesis 4:

Related deals should, on average, increase R&D intensities.

Hypothesis 5 is concerned with private and public acquisitions. Lerner et al. (2011) found that private firms innovate better than public firms. Ferreria et al. (2014) observed that private firms are more successful than public firms in exploring new ideas. We conjecture that R&D intensities increase after acquisition of private firms.

Hypothesis 5:

R&D intensities will, on average, increase after private firms are acquired.

Our next hypotheses deals with cross-border acquisitions. One would expect that most cross-border deals would involve some increased integration costs as the two firms may have significant differences in managerial styles and values² etc. For a cross-border acquisition to be proposed and considered there should be some additional offsetting benefits to offset the additional costs due to integration. One possible additional benefit is the acquisition of knowledge and/or a current research stream and hence we suggest that cross-border acquisitions will result in increased R&D

¹ Some firms obviously acquire other related firms to increase market power.

² Significant differences in managerial styles and values can easily occur in a domestic acquisition but it is likely, on average, to be more severe in cross-border deals.

intensity. There is support for this argument by Stiebale (2013) who examined the R&D intensities' of German firms after cross-border acquisitions. He found that the German firms generally increased their R&D intensities.

Hypothesis 6:

R&D intensity for acquirers will, on average, increase after cross-border acquisitions for firms that belong to R&D intensive industries.

We next make three more hypotheses concerning cross-border acquisitions. We feel that knowledge transactions will occur most frequently between heavy R&D intensive industries that are similar in income (GNP/capita). There is, we feel, a greater likelihood of additional R&D intensity by the acquirer if the two countries involved have similar income per capita³.

Hypothesis 6a:

R&D intensity will, on average, increase for cross-border acquisitions that are both R&D intensive and similar in income levels.

We next look at the effect of cultural distance on research intensities. There is a considerable research devoted to whether cultural distance helps or hurts post-acquisition performance, a topic related to ours. If post-acquisition performance is good (poor) then R&D intensities might be expected to go up (down) as acquirers have more (less) resources at their disposal. The research has been inconclusive as to whether cultural distance improves or decreases post-acquisition performance (Stahl & Voigt, 2008). Basically there is tradeoff between the costs of integration and

³ The World Bank distinguishes countries based on five income classifications. We define two countries as having similar income per capita for the year if both countries in that year belong to the same income group.

the benefits of cultural distance (new and different routines and ideas are forthcoming) (Dikova et al., 2013). For hypothesis testing, we propose the following:

Hypothesis 6b:

R&D intensity will, on average, increase for cross-border acquisitions that are both R&D intensive and have a high degree of cultural distance between the two firms.

There has been some criticism of the concept of cultural distance (see, for example, Shenkar, 2012). In particular, scholars have questioned the symmetry assumption (the distance from A to B is the same as the cultural distance from B to A). Zhou et al. (2016) while studying completion rates for cross-border acquisitions involving emerging markets shows the direction of the acquisition is important (i.e. the target is from the emerging markets or the target is from the developed world). In a similar spirit we analyze whether the location of the acquirer is important. We suggest the following:

Hypothesis 6c:

R&D intensity for more research intense industries will increase for cross-border acquisitions if the acquirer is non U.S.

3. Data Sources and Research Design

3.1 Data Sources

We collect data on acquisitions (both successful and unsuccessful) from Thomson and Reuters' Mergers and Acquisitions database. We require that the size of the deal be at least 1 million U.S. dollars, the bidder after the acquisition owns at least 50% of the equity of the target, and the relative size of the deal (the ratio of the size of the deal to the market value of the acquirer) be at least 5

percent. Since we are studying whether the R&D intensity of firms increases or decreases after acquisitions we do not want to include small acquisitions (the \$1 million minimum) or when the acquisition would likely have a minor effect of the R&D Intensity of the acquirer (the relative size of the deal is small).

For most of our empirical tests, we require that firms not have another acquisition during the period three years before the event to three years after the event according to Thomson and Reuters' Mergers and Acquisitions database. For example, when we investigate the effect of public acquisitions (the target is a public firm) we look at R&D intensity both before and after the acquisition of a public firm that does not have any other acquisitions during this period. We make one exception to our rule of no other acquisitions in the seven year period namely when we examine whether acquisitions, in general, affect R&D intensity. Here we allow multiple acquisitions only if all the acquisitions occurred in year 0. No other acquisitions are allowed to occur for three years prior to the acquisition year nor for the three year subsequent to the acquisition year.

Our sample is designed to see the effect of acquisition on R&D intensity. It would be difficult to have two different acquisitions a year apart and disentangle the effects of each. Our research does not study the effects of acquisitions on R&D intensity for serial acquirers but instead analyzes those companies that only have acquisitions infrequently.

Acquirers can appear more than once in the sample. A firm could have an acquisition in 1995 and another one in 2000. As long as it had no other acquisitions between 1992-1994, 1996-1999, and 2001-2003, the firm would appear twice in the sample.

Financial information is gathered from *Worldscope*. To minimize the impact of recording errors in the database, we winsorize all financial numbers at 1 and 99 percent levels. Since *Worldscope*

added many foreign firms to their database in the early 1990's our sample period begins 1991 and ends in early 2013.

We use the cultural dimension variables from both Hofstede and Globe. We follow the general approach used by Kogut et al. (1988).

3.2 Research Design

Our goal is to determine the impact of acquisitions on the R&D intensity of the acquiring firms. To do that we employ a difference-in-differences estimator.

Our basic research design is to compare the R&D intensity of two groups of firms both before and after a “merger” (All Deals). The first group (treatment) consists of firms who successfully acquired other firms (Completed Deals) and the second group of firms attempted to acquire another firm but the deal was ultimately unsuccessful (Withdrawn Deals). It is important to note the reason the merger was not finalized had nothing to do with the R&D policies of the either the targets or the acquirers.

The estimating question is as follows:

$$\begin{aligned} \text{R\&D Intensity}_{it} = & b_0 + b_1 \text{Completed}_{it} + b_2 \text{Post Years}_{it} + b_3 \text{Completed}_{it} * \text{Post Years}_{it} \\ & + \sum b_k \text{Controls}_{it} + e_{it} \end{aligned}$$

Where $\text{R\&D Intensity}_{it}$ is the R&D intensity of firm i at time t measured as R\&D/Assets or R\&D/Sales . Completed_{it} is a dummy variable that equals 1 if the acquisition for firm i at time t was completed and zero if the deal did not go through with the offer being withdrawn after the announcement. Post Years_{it} is a dummy variable that equals 1 for firm i if year t occurs after the acquisition year and zero otherwise. Controls_{it} is a vector of controls for firm i and time t and will be discussed below. e_{it} is the error term for firm i at time t .

Time t is the completion date of the acquisition or the withdrawal date of a failed acquisition. We use two windows. The first compares the R&D intensity in year $t-1$ to year $t+1$ for both the treatment firms and control sample. The second window compares the observations in the period $t-3$ to $t-1$ (Before Period) to the period $t+1$ to $t+3$ (Post Years) for both the treatment and control firms. For the second window we use three observations before the “acquisition” and three after the “acquisition”.

We follow Seru (2014) in his initial choice of control variables with some modifications. The first control is firm size measured by sales (natural log). To control for investment opportunities we use the market-to-book ratio. To measure possible financial constraints, we employ EBIDTA/assets, cash and short-term equivalents/assets, book value of total debt/assets, and tangible assets/assets. Finally we use a measure of industry concentration employing the Herfindahl index for sales. Definitions of all variables are provided in the appendix.

4. Findings

4.1 Descriptive Statistics

Table 1 provides some descriptive statistics for the entire sample. Panel A reveals 9927 deals (completed and withdrawn). The deals are almost all completed as there are only 247 withdrawn deals, less than 2.5% of all deals⁴. Since 1995 there have been at least 300 deals a year with a peak of 674 in 2007⁵. We use two measures for R&D intensity so that our findings are not based only on one measure. The first is R&D/Assets and the second is R&D/Sales. Panel B shows the

⁴ This number 2.5% is smaller than those reported in other studies. Cotter et al. (1997) observes a 24.9% amount for domestic M&As in the U.S. Dikova et al. (2010) finds that it is 18% for cross-border M&As between developed countries. Zhou et al. (forthcoming) see a 32.5 % amount for M&As between BRIC countries and developed countries. We attribute the differences to the data sources.

distribution of bidders. Three regions stand out – U.S., Europe, and Asia. Panel B also shows where the targets are located. In addition to the U.S., Europe, and Asia other countries located in the North America besides the U.S. are the domicile of a lot of the targets. The sample is truly a worldwide sample.

In Panel C of Table 1 we present the number of acquisitions each year as well as the means of the ratio R&D to sales and R&D to assets for those acquisitions. By construction, the makeup of the firms comprising the acquisitions in any one year is entirely different than it is in the next year. So Panel C does not give the means of R&D/Assets and R&D/Sales for the same group of firms over a period of time. This table does, however, reveal a few things. Both ratios peak in 2000. The grand mean of R&D/Sales is larger than the corresponding mean of R&D/Assets and the standard deviation of the time series of R&D/Sales is about three times larger than the series of R&D/Assets. In summary, the time series of the means of R&D/sales and R&D/assets produce similar but by no means identical patterns.

Table 2 reports mean, median and standard deviations of the firm-level financial characteristics of acquirers and also deal values and % shares owned after with acquisitions for all, complete and withdrawn deals. Mean values of R&D intensities are slightly higher for completed deals than withdrawn deals. Deal values in cases of both single and multiple acquisitions in a year are higher for withdrawn deals than completed deals.

All the news stories around the failed acquisitions were checked on Factiva and Lexus-Nessus to see if the reasons for the failed mergers had to do with R&D policies of either the targets or bidders. We found stories on 227 of 247 (almost 92%) of the failed acquisitions and none of the news stories explicitly mentioned the R&D policies of either firms. It should be pointed out that the news stories

were often short and often did not give a clear reason why the acquisition was terminated. As a result, we left in all of the failed acquisitions in the sample.

4.2 All Deals

In tables 3 to 5 we report regression results. We give the findings for two time periods. The first is -1 (before) and +1 (after). We compare the intensities the year before the acquisition to the year right after for both the treatment and controls groups. This is the immediate change. The second time period covers the period year -3 to year -1 (before period) to the period +1 to +3 (after period). This is an intermediate change. We provide results for the all deals and for just the completed deals using both measures of R&D intensities (R&D/Assets and R&D/Sales).

In Table 3 we report the findings for all the deals in our sample. The coefficient of interest is on the interaction term and measures the change in R&D intensities due to the completion of the acquisition relative to the change in intensities for the control group. None of these four coefficients are significant. Overall the lack of significance suggests that many factors are at work and they partly cancel each other out.

We note that in the regressions involving the completed deals the coefficient on Post Years is positive and significant in all four regressions.

4.3 R&D in Intensive Industries vs. R&D in Less Intensive Industries

In Panel B of Table 3, we present the results for firms in R&D heavy industries (Panel B1) and also the firms in less heavy R&D industries (Panel B2). It is interesting to note that the coefficients of the interactive term (the ones of interest) are always positive for R&D intensive industries while the coefficients on the interactive term for less intensive industries are always negative. However,

only one of the coefficients is significant. We conclude that we are unable to support hypothesis 2 which says that R&D intensive firms increase their R&D intensity after acquisition.

4.4 Small Bidders vs. Large Bidders

We propose that the R&D intensity for large bidders should increase after an acquisition since they are often buying knowledge and in the immediate aftermath of an acquisition these acquirers may increase their R&D intensity.

The coefficients on the interactive terms are never significant for small bidders (see Panel C1) but on the large bidders (Panel C2) the relevant coefficients are always positive and in two cases out of four significantly positive. In summary, we provide mixed evidence of hypothesis 3 that large bidders will increase their R&D intensity after an acquisition.

4.5 Related vs. Unrelated Deals

Hypothesis 4 concerns R&D intensities after an acquisition in related vs. unrelated industries. We hypothesize that R&D intensities will increase in related industries but not in unrelated industries. The coefficients on the interactive term are significant in only one instance (see Panels D1 and D2) and we conclude that hypothesis 4 is not supported.

4.6 Private vs. Public Deals

With one exception all the coefficients on the interactive terms (Completed*Post Years) are insignificant for the samples for both private and public firms (see Panels E1 and E2). Our results do not support hypothesis 5 which says that R&D intensities should increase after the acquisition of a private target.

4.7 Cross-Border Deals vs. Domestic Deals

Table 4 reports the regression results using all cross-border deals separately (Panels A1 and A2) and then separately for all domestic deals (Panels A3 and A4). Our findings in Panels A1 reveal that none of the coefficients on the interactive term are significant though all are positive. When the sample is further limited to heavy research intensive firms and cross-border deals (hypothesis 6) we find that in three of the four cases the coefficient on the interactive term is positive and significant (Panel A2) and thus gives credence to the hypothesis that cross-border acquisitions by research intensive firms will increase R&D intensities after an acquisition. Panels A3 and A4 show that the coefficients on the interactive terms are negative in three of the four cases and all are insignificant when the sample is limited to domestic deals.

4.8 The Role of Country Income Levels

Hypothesis 6a was that R&D intensities of cross-border acquisitions after an acquisition will increase if the acquisitions occurs between heavy R&D intensive firms and the income levels of the countries are similar. The data supports this hypothesis with the results reported in Panels B1 (heavy R&D intense industries) and B2 (less R&D intense industries) with R&D/Assets and in Panels C1 and C2 with R&D/Sales. Panels B1 and C1 (B2 and C2) are for deals in R&D heavy (less) intense industries. In three out of four instances, R&D intensity increased after an acquisition when the acquisition occurred in a R&D heavy intense industry and the income level of the two countries was similar. This was not the pattern for less R&D intense industries nor when there was a difference in income levels.

4.9 The Role of Cultural Distance

Table 5 reports the results concerning the hypothesis 6b (testing the role of cultural distances between countries of acquirers and bidders). We find support for this hypothesis by using Hofstede cultural dimensions (Panels A1 and A2 with R&D/Assets, and C1 and C2 with R&D/Sales) and

Globe cultural dimensions (Panels B1 and B2 with R&D/Assets, and D1 and D2 with R&D/Sales). R&D intensities are higher when acquisitions occur in heavy R&D industries (Panels A1, B1, C1, and D1) and when the cultural distance are high. The benefits of high cultural distance (presumably new ways of looking at problems) outweigh the negative effects of greater integration costs when acquisition occur in heavy R&D industries.

4.10 The Location of the Acquirer

Panels E1 and E2 of Table 5 present our findings concerning hypothesis 6c (R&D intensities will increase for non-U.S. acquirers in heavy R&D intense industries). Our findings are clear. R&D intensities for non-U.S. acquirers increase after an acquisition for firms in research intensive industries. That finding does not hold for U.S. acquirers in heavy research intensive industries acquiring foreign targets. We conjecture that many foreign acquirers are anxious to obtain knowledge from “foreign” sources.

5. Conclusions

Our study examines whether R&D intensities (R&D/Assets and R&D/Sales) increase, decrease, or remain the same after an acquisition. We focus on firms that infrequently had acquisitions so that we can isolate the acquisition and identify it with the type of acquisition. We use a difference-in-differences estimator to see the impact acquisitions have R&D intensities.

When we look at acquisitions in general, they do not result in acquisitions increasing or decreasing R&D intensities. This finding is in line with many theoretical articles that provide reasons why R&D intensities might increase or decrease or not change at all as a result of acquisition.

We find support for Phillips and Zhdanov (2013) contention that small firms are often innovators and large firms are often buyers of knowledge. If that were the case, the R&D intensity for large firms would increase as efforts would be made to take the new knowledge so that it can be applied in the marketplace.

We observe that cross-border acquisitions of research intensive firms often results in increased R&D intensities as opposed to purely domestic acquisitions. This effect is larger the more similar the income levels of the two countries (acquirer and target). Also, acquisitions seem to have a greater positive effect on the acquirer's R&D intensity the greater the cultural distance between the two parties. And finally, increases in R&D intensities seem to exist when the acquirer is non-American.

Distinctions based on whether the target is in the same industry as the acquirer or whether the target is public or private firm did not lead to increases or decreases in R&D intensities.

Appendix

Definitions of Variables

R&D/Assets	Ratio of R&D spending to book value of total assets
R&D/Sales	Ratio of R&D spending to net sales
Completed	A dummy with a value of 1 for completed, 0 failed acquisitions
PostYears	1 for post years and 0 for pre years of acquisition year
Size	Natural logarithm of book value of total assets in US Dollar
MtoB Ratio	Market value of equity divided by book value of equity
Profitability	Ratio of EBIDTA to book value of total assets
Cash Holding	Ratio of cash and short-term equivalents to book value of total assets
Leverage	Book value of total debt divided by assets
Tangibility	Tangible assets divided by assets
Ind. Concentration	Herfindahl index for industry sales reported in all 2 digit SIC codes
R&D Intense Industries	Industries identified based on 2-digit primary SIC codes with 1 % and higher average ratio of firm-level R&D/Assets
Relative Size	Ratio of (total) value of transaction (SDC database) to market value of acquirer. Total value of multiple transactions is calculated when a firm involves more than one acquisition in a year. Thus, we have firm/year observations by converting multiple acquisitions in a year to one transaction value per year for a firm.
Income Levels (Same/Higher/Lower)	World Bank Income classifications: High-income OECD members, High-income nonOECD members, Upper-middle-income economies, Lower-middle-income economies, Low-income economies
Power Distance Index	
Individualism versus Collectivism	
Masculinity versus Femininity	Hofstede cultural dimension variables
Uncertainty Avoidance Index	
Long Term Orientation versus Short Term Normative Orientation	
Indulgence versus Restraint	
Assertiveness	
Institutional Collectivism	
In-Group Collectivism	
Future Orientation	
Gender Egalitarianism	Globe cultural dimension variables
Humane Orientation	
Performance Orientation	
Power Distance	
Uncertainty Avoidance	
Cultural Distance	Cultural difference between acquirer's country (home) and target's country (host). Some of ratios of squared differences in cultural dimensions between home and host country to the variance of dimensions time the number of cultural dimension used
Patent Right Index for bidder and target countries	The patent rights index for 1985 from Ginarte and Park (1997) and Park (2008)

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Table 1: Number of deals

The sample period is 1990-2014. Deals are included when bidders have complete financial end of the year data one year before and after the deal announcement year. Appendix provides definitions of variables.

Panel A: Number of deals by year

Year	All Deals	Completed Deals	Withdrawn Deals
1991	226	220	6
1992	248	244	4
1993	196	192	4
1994	249	243	6
1995	303	293	10
1996	383	375	8
1997	469	461	8
1998	502	497	5
1999	487	482	5
2000	622	597	25
2001	516	506	10
2002	474	465	9
2003	453	446	7
2004	575	557	18
2005	622	611	11
2006	613	608	5
2007	674	657	17
2008	640	619	21
2009	333	313	20
2010	400	387	13
2011	490	476	14
2012	415	404	11
2013	37	27	10
Total	9927	9680	247

Panel B: Number of deals by region

	Bidder Regions			Target Regions		
	All Deals	Completed Deals	Withdrawn Deals	All Deals	Completed Deals	Withdrawn Deals
Africa	131	126	5	279	269	10
Asia	2075	1981	94	1904	1814	90
Eastern Europe	91	88	3	152	147	5
Latin America	143	141	2	284	278	6
North America	640	626	14	1098	1077	21
United States	3286	3211	75	2867	2797	70
Oceania	777	754	23	674	657	17
Western Europe	2784	2753	31	2669	2641	28
Total	9927	9680	247	9927	9680	247

Panel C: for R&D Intensity by year

Year	N	R&D/Assets		R&D/Sales	
		Mean	StdDev	Mean	StdDev
1991	226	0.0120	0.0304	0.0117	0.0318
1992	248	0.0125	0.0290	0.0213	0.1160
1993	196	0.0131	0.0346	0.0157	0.0754
1994	249	0.0172	0.0486	0.0211	0.0739
1995	303	0.0128	0.0334	0.0161	0.0823
1996	383	0.0202	0.0576	0.0322	0.1529
1997	469	0.0225	0.0595	0.0291	0.0879
1998	502	0.0217	0.0512	0.0374	0.1489
1999	487	0.0156	0.0416	0.0316	0.1416
2000	622	0.0230	0.0540	0.0622	0.2192
2001	516	0.0228	0.0576	0.0557	0.2025
2002	474	0.0222	0.0589	0.0450	0.1692
2003	453	0.0126	0.0352	0.0326	0.1536
2004	575	0.0188	0.0597	0.0402	0.1792
2005	622	0.0202	0.0578	0.0356	0.1540
2006	613	0.0173	0.0486	0.0347	0.1752
2007	674	0.0192	0.0565	0.0471	0.2230
2008	640	0.0150	0.0465	0.0210	0.0915
2009	333	0.0220	0.0655	0.0497	0.2190
2010	400	0.0111	0.0410	0.0169	0.0703
2011	490	0.0153	0.0429	0.0311	0.1484
2012	415	0.0202	0.0581	0.0331	0.1523
2013	37	0.0068	0.0154	0.0094	0.0215
Total	9927	0.0181	0.0512	0.0352	0.1578

Table 2: Summary statistics for variables

This table reports summary statistics of firm-level variables of acquirers and deal characteristics. Some years include multiple acquisitions by an acquirer, therefore, we take the sum of the deal values if this is the case. The sample period is 1990-2014. Deals are included when bidders have complete financial end of the year data one year before and after the deal announcement year. Appendix provides definitions of variables.

	All Deals (N = 9927)			Completed Deals (N = 9680)			Withdrawn Deals (N = 247)		
	Mean	Median	StdDev	Mean	Median	StdDev	Mean	Median	StdDev
R&D/Assets	0.018	0.000	0.051	0.018	0.000	0.051	0.015	0.000	0.056
R&D/Sales	0.035	0.000	0.158	0.035	0.000	0.158	0.028	0.000	0.132
Size (Ln of Assets)	12.306	12.282	2.021	12.316	12.289	2.007	11.941	11.821	2.476
MtoB Ratio	2.455	1.627	4.606	2.456	1.633	4.573	2.435	1.369	5.755
Profitability	0.035	0.099	0.381	0.037	0.100	0.377	-0.041	0.077	0.524
Cash Holding	0.145	0.086	0.169	0.145	0.085	0.168	0.148	0.094	0.171
Leverage	0.342	0.334	0.258	0.342	0.334	0.258	0.349	0.304	0.287
Tangibility	0.298	0.244	0.238	0.296	0.242	0.238	0.348	0.315	0.238
Ind. Concentration	0.759	0.992	0.335	0.760	0.992	0.334	0.727	0.947	0.367
Deal Value (Million \$)	182.9	25.9	861.2	175.3	25.6	762.3	478.4	37.4	2639.9
Total Deal Value (Million \$)	219.7	29.6	1257.9	212.5	29.2	1201.2	503.5	40.0	2644.8
% of Shares owned	88.34	100.00	24.19	88.44	100.00	24.11	-	-	-

Table 3: The effects of deals on bidders' R&D expenditures

This table report OLS estimations to explore differences in bidders' R&D expenditures between pre-deal (-1 and -3 to -1) and post-deal (+1 and +1 to +3) periods for; 1) all deals comparing completed deals (Treated) and withdrawn deals (Control); and 2) completed deals only. The sample period is 1990-2014. Deals are included when bidders have complete financial data in each year for pre- and post-deal periods. All estimations include country, industry, and year fixed effects. The symbols ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: All Deals

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.001 [0.003]		0.002 [0.010]		0.004 [0.003]		0.00 [0.013]	
Post Years	0.004 [0.003]	0.004*** [0.001]	0.012 [0.015]	0.009*** [0.002]	0.001 [0.004]	0.002** [0.001]	-0.007 [0.007]	0.004* [0.002]
Completed*Post Years	-0.001 [0.003]		-0.004 [0.015]		0.00 [0.004]		0.011 [0.007]	
Size	0.001* [0.000]	0.000* [0.000]	0.003*** [0.001]	0.003*** [0.001]	0 [0.000]	0 [0.000]	0.003*** [0.001]	0.003*** [0.001]
MtoB Ratio	0.001*** [0.000]	0.001*** [0.000]	0.001** [0.000]	0.001** [0.000]	0.001*** [0.000]	0.001*** [0.000]	0.001** [0.001]	0.001** [0.001]
Profitability	-0.029*** [0.003]	-0.029*** [0.004]	-0.086*** [0.011]	-0.084*** [0.012]	-0.035*** [0.005]	-0.036*** [0.005]	-0.103*** [0.015]	-0.107*** [0.016]
Cash Holding	0.068*** [0.005]	0.069*** [0.005]	0.237*** [0.020]	0.243*** [0.020]	0.073*** [0.007]	0.073*** [0.007]	0.297*** [0.033]	0.296*** [0.033]
Leverage	-0.013*** [0.002]	-0.014*** [0.002]	-0.012* [0.007]	-0.012* [0.007]	-0.012*** [0.002]	-0.013*** [0.002]	0 [0.008]	-0.001 [0.008]
Tangibility	0.006*** [0.002]	0.007*** [0.002]	0.013* [0.007]	0.015** [0.007]	0.003 [0.003]	0.003 [0.003]	0.011 [0.010]	0.013 [0.010]
Ind. Concentration	0.009*** [0.001]	0.009*** [0.001]	0.041*** [0.004]	0.041*** [0.004]	0.006*** [0.002]	0.006*** [0.002]	0.031*** [0.005]	0.031*** [0.005]
Constant	-0.016** [0.007]	-0.016** [0.006]	-0.070*** [0.019]	-0.072*** [0.017]	-0.013* [0.008]	-0.012 [0.007]	-0.067* [0.034]	-0.076** [0.033]
Adjusted R-sq	0.274	0.275	0.185	0.184	0.288	0.29	0.209	0.21
Observations	19854	19360	19854	19360	23673	23169	23673	23169

Panel B1: Bidders in more R&D intense industries

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.001 [0.008]		-0.004 [0.027]		0.011 [0.009]		0.004 [0.036]	
Post Years	0.002 [0.006]	0.008*** [0.001]	-0.005 [0.036]	0.019*** [0.004]	-0.002 [0.008]	0.003 [0.002]	-0.022 [0.014]	0.009 [0.006]
Completed*Post Years	0.005 [0.006]		0.024 [0.036]		0.004 [0.008]		0.030** [0.014]	
Size	0.00 [0.001]	0.00 [0.001]	0.004*** [0.001]	0.004*** [0.001]	0.00 [0.001]	0.00 [0.001]	0.005*** [0.002]	0.005*** [0.002]
MtoB Ratio	0.001*** [0.000]	0.001*** [0.000]	0.002*** [0.001]	0.002*** [0.001]	0.001*** [0.000]	0.001*** [0.000]	0.002** [0.001]	0.002** [0.001]
Profitability	-0.051*** [0.006]	-0.052*** [0.006]	-0.151*** [0.020]	-0.153*** [0.021]	-0.058*** [0.008]	-0.060*** [0.009]	-0.169*** [0.026]	-0.177*** [0.027]
Cash Holding	0.102*** [0.007]	0.102*** [0.007]	0.377*** [0.032]	0.383*** [0.032]	0.103*** [0.011]	0.103*** [0.011]	0.464*** [0.051]	0.463*** [0.051]
Leverage	-0.019*** [0.005]	-0.021*** [0.005]	-0.007 [0.014]	-0.007 [0.014]	-0.017*** [0.005]	-0.019*** [0.005]	0.021 [0.018]	0.019 [0.018]
Tangibility	0.006 [0.006]	0.007 [0.006]	0 [0.018]	0.004 [0.019]	-0.002 [0.008]	-0.002 [0.008]	-0.02 [0.027]	-0.018 [0.027]
Ind. Concentration	0.010*** [0.003]	0.011*** [0.003]	0.067*** [0.010]	0.067*** [0.010]	0.004 [0.004]	0.004 [0.004]	0.044*** [0.012]	0.044*** [0.012]
Constant	-0.013 [0.022]	-0.012 [0.023]	-0.023 [0.091]	-0.024 [0.098]	-0.031** [0.015]	-0.018 [0.013]	-0.05 [0.050]	-0.046 [0.029]
Adjusted R-sq	0.283	0.284	0.244	0.244	0.297	0.298	0.279	0.28
Observations	8346	8176	8346	8176	9802	9634	9802	9634

Panel B2: Bidders in less R&D intense industries

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.002** [0.001]		0.004** [0.002]		0.002** [0.001]		0.002 [0.002]	
Post Years	0.003 [0.003]	0.00 [0.000]	0.015 [0.012]	0.00 [0.001]	0.005 [0.005]	0.00 [0.000]	0.008 [0.010]	-0.001 [0.001]
Completed*Post Years	-0.003 [0.003]		-0.015 [0.012]		-0.005 [0.005]		-0.008 [0.010]	
Size	0.00 [0.000]	0.00 [0.000]	0.00 [0.000]	0.00 [0.000]	0.00 [0.000]	0.00 [0.000]	-0.001 [0.000]	-0.001 [0.000]
MtoB Ratio	0.00 [0.000]	0.000* [0.000]	0.00 [0.000]	0.00 [0.000]	0.00 [0.000]	0.00 [0.000]	0.00 [0.000]	0.00 [0.000]
Profitability	-0.006*** [0.002]	-0.005*** [0.002]	-0.020*** [0.007]	-0.016** [0.006]	-0.008* [0.004]	-0.005 [0.003]	-0.027** [0.010]	-0.022** [0.010]
Cash Holding	0.006** [0.003]	0.006** [0.003]	0.014 [0.010]	0.012 [0.009]	0.010*** [0.004]	0.009** [0.004]	0.022 [0.015]	0.019 [0.015]
Leverage	-0.004*** [0.001]	-0.004*** [0.001]	-0.003 [0.004]	-0.005 [0.003]	-0.005*** [0.001]	-0.006*** [0.001]	-0.006 [0.004]	-0.008* [0.004]
Tangibility	-0.002** [0.001]	-0.002** [0.001]	-0.013** [0.006]	-0.013** [0.006]	-0.003** [0.002]	-0.004** [0.001]	-0.012 [0.007]	-0.013* [0.007]
Ind. Concentration	0.00 [0.001]	0.00 [0.001]	0.006*** [0.002]	0.005** [0.002]	0.001 [0.001]	0.001 [0.001]	0.004 [0.003]	0.004 [0.003]
Constant	0.002 [0.002]	0.004 [0.002]	0.009 [0.008]	0.014* [0.008]	-0.001 [0.004]	0.001 [0.004]	0.003 [0.013]	0.007 [0.013]
Adjusted R-sq	0.056	0.055	0.022	0.017	0.069	0.065	0.028	0.024
Observations	11508	11184	11508	11184	13871	13535	13871	13535

Panel C1: Small bidders

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.005 [0.005]		0.005 [0.017]		0.006 [0.006]		-0.005 [0.022]	
Post Years	0.007 [0.006]	0.004*** [0.001]	0.02 [0.025]	0.010*** [0.003]	0.001 [0.007]	0.00 [0.001]	-0.014 [0.012]	0.00 [0.004]
Completed*Post Years	-0.003 [0.006]		-0.01 [0.025]		-0.001 [0.007]		0.014 [0.012]	
Size	0.001* [0.001]	0.001* [0.001]	0.008*** [0.002]	0.008*** [0.002]	0.001* [0.001]	0.001* [0.001]	0.011*** [0.003]	0.011*** [0.003]
MtoB Ratio	0.001*** [0.000]	0.001*** [0.000]	0.001** [0.001]	0.001** [0.001]	0.001*** [0.000]	0.001*** [0.000]	0.001** [0.001]	0.001** [0.001]
Profitability	-0.029*** [0.004]	-0.029*** [0.004]	-0.089*** [0.012]	-0.087*** [0.012]	-0.035*** [0.005]	-0.036*** [0.005]	-0.108*** [0.016]	-0.111*** [0.017]
Cash Holding	0.069*** [0.005]	0.070*** [0.006]	0.249*** [0.023]	0.255*** [0.024]	0.078*** [0.008]	0.078*** [0.008]	0.321*** [0.038]	0.319*** [0.038]
Leverage	-0.012*** [0.003]	-0.014*** [0.003]	-0.012 [0.010]	-0.013 [0.010]	-0.011*** [0.003]	-0.013*** [0.003]	0.005 [0.011]	0.003 [0.012]
Tangibility	0.010*** [0.003]	0.011*** [0.003]	0.016 [0.011]	0.019* [0.011]	0.006 [0.004]	0.007* [0.004]	0.018 [0.014]	0.02 [0.015]
Ind. Concentration	0.009*** [0.002]	0.009*** [0.002]	0.050*** [0.006]	0.051*** [0.006]	0.004* [0.003]	0.005* [0.003]	0.035*** [0.007]	0.034*** [0.008]
Constant	-0.034*** [0.011]	-0.029*** [0.010]	-0.141*** [0.034]	-0.138*** [0.030]	-0.031** [0.013]	-0.029** [0.012]	-0.145** [0.064]	-0.162*** [0.063]
Adjusted R-sq	0.268	0.269	0.184	0.183	0.294	0.295	0.22	0.221
Observations	11730	11438	11730	11438	14519	14219	14519	14219

Panel C2: Large bidders

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.003 [0.002]		-0.004 [0.003]		0.002 [0.002]		0.005 [0.004]	
Post Years	0.001 [0.001]	0.002*** [0.000]	0.001 [0.002]	0.003*** [0.001]	-0.001 [0.001]	0.001** [0.001]	-0.004 [0.003]	0.00 [0.002]
Completed*Post Years	0.001* [0.001]		0.002 [0.002]		0.002 [0.001]		0.004* [0.003]	
Size	0.001** [0.000]	0.001** [0.000]	0.002*** [0.001]	0.002*** [0.001]	0.002*** [0.000]	0.002*** [0.000]	0.003*** [0.001]	0.003*** [0.001]
MtoB Ratio	0.000*** [0.000]	0.000*** [0.000]	0.001*** [0.000]	0.001*** [0.000]	0.001*** [0.000]	0.001*** [0.000]	0.001*** [0.000]	0.001*** [0.000]
Profitability	-0.032*** [0.008]	-0.033*** [0.008]	-0.132*** [0.034]	-0.134*** [0.034]	-0.022*** [0.006]	-0.022*** [0.006]	-0.133*** [0.038]	-0.137*** [0.039]
Cash Holding	0.065*** [0.007]	0.064*** [0.007]	0.195*** [0.035]	0.195*** [0.035]	0.044*** [0.007]	0.045*** [0.007]	0.168*** [0.042]	0.170*** [0.043]
Leverage	-0.015*** [0.002]	-0.015*** [0.002]	-0.016*** [0.005]	-0.017*** [0.005]	-0.015*** [0.002]	-0.015*** [0.002]	-0.022*** [0.004]	-0.023*** [0.004]
Tangibility	-0.001 [0.002]	0 [0.002]	0.01 [0.008]	0.011 [0.008]	-0.004* [0.002]	-0.004 [0.002]	0.002 [0.004]	0.003 [0.004]
Ind. Concentration	0.005*** [0.001]	0.005*** [0.001]	0.012*** [0.002]	0.012*** [0.002]	0.005*** [0.001]	0.005*** [0.001]	0.009*** [0.003]	0.009*** [0.003]
Constant	-0.008 [0.009]	-0.014 [0.009]	-0.035* [0.021]	-0.043** [0.021]	-0.022*** [0.008]	-0.021*** [0.008]	-0.050*** [0.017]	-0.045*** [0.016]
Adjusted R-sq	0.326	0.325	0.236	0.236	0.343	0.343	0.26	0.262
Observations	8124	7922	8124	7922	9154	8950	9154	8950

Panel D1: Related industry deals covering bidders with single deal in a year

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.001 [0.007]		-0.002 [0.020]		-0.004 [0.006]		-0.01 [0.013]	
Post Years	0.005 [0.008]	0.004*** [0.001]	0.012 [0.030]	0.009*** [0.003]	0.00 [0.009]	0.00 [0.001]	-0.025* [0.015]	0.00 [0.006]
Completed*Post Years	-0.001 [0.008]		-0.003 [0.030]		0.001 [0.009]		0.026* [0.015]	
Size	0.001 [0.001]	0.001 [0.001]	0.005*** [0.001]	0.005*** [0.001]	0 [0.001]	0 [0.001]	0.005** [0.002]	0.005** [0.002]
MtoB Ratio	0.001*** [0.000]	0.001*** [0.000]	0.001 [0.001]	0.002* [0.001]	0.001*** [0.000]	0.001** [0.000]	0.002* [0.001]	0.002* [0.001]
Profitability	-0.028*** [0.006]	-0.028*** [0.006]	-0.091*** [0.020]	-0.090*** [0.021]	-0.036*** [0.008]	-0.035*** [0.008]	-0.120*** [0.029]	-0.122*** [0.029]
Cash Holding	0.077*** [0.007]	0.079*** [0.007]	0.272*** [0.032]	0.278*** [0.032]	0.079*** [0.010]	0.079*** [0.010]	0.365*** [0.055]	0.370*** [0.055]
Leverage	-0.015*** [0.004]	-0.016*** [0.004]	-0.013 [0.013]	-0.013 [0.013]	-0.011** [0.005]	-0.012** [0.005]	0.024 [0.020]	0.023 [0.020]
Tangibility	0.010*** [0.004]	0.012*** [0.004]	0.019 [0.012]	0.023* [0.012]	0.012** [0.005]	0.013*** [0.005]	0.027 [0.018]	0.031* [0.018]
Ind. Concentration	0.006** [0.003]	0.006** [0.003]	0.041*** [0.008]	0.041*** [0.008]	0.003 [0.003]	0.003 [0.003]	0.030*** [0.010]	0.031*** [0.011]
Constant	-0.014 [0.014]	-0.016 [0.012]	-0.094*** [0.036]	-0.101*** [0.030]	0.001 [0.017]	-0.005 [0.016]	-0.08 [0.057]	-0.091 [0.056]
Adjusted R-sq	0.307	0.309	0.201	0.198	0.325	0.324	0.252	0.25
Observations	6672	6532	6672	6532	7663	7525	7663	7525

Panel D2: Unrelated industry deals covering bidders with single deal in a year

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.008 [0.005]		0.005 [0.025]		0.017** [0.008]		0.034* [0.018]	
Post Years	0.009 [0.008]	0.005*** [0.001]	0.009 [0.039]	0.014*** [0.004]	0.006 [0.008]	0.002 [0.001]	0.005 [0.015]	0.009* [0.005]
Completed*Post Years	-0.004 [0.008]		0.005 [0.039]		-0.004 [0.008]		0.003 [0.015]	
Size	0 [0.001]	0 [0.001]	0.004** [0.002]	0.004** [0.002]	-0.001 [0.001]	-0.001 [0.001]	0.001 [0.002]	0.001 [0.002]
MtoB Ratio	0 [0.000]	0 [0.000]	0 [0.001]	0 [0.001]	0.001** [0.000]	0.001** [0.000]	0.001 [0.001]	0.001 [0.001]
Profitability	-0.032*** [0.006]	-0.032*** [0.006]	-0.102*** [0.021]	-0.101*** [0.022]	-0.040*** [0.008]	-0.043*** [0.009]	-0.099*** [0.025]	-0.110*** [0.029]
Cash Holding	0.063*** [0.009]	0.065*** [0.009]	0.286*** [0.045]	0.297*** [0.045]	0.080*** [0.016]	0.080*** [0.016]	0.297*** [0.065]	0.298*** [0.066]
Leverage	-0.012*** [0.004]	-0.013*** [0.005]	-0.001 [0.015]	-0.002 [0.015]	-0.005 [0.005]	-0.008 [0.005]	-0.002 [0.013]	-0.008 [0.013]
Tangibility	0.004 [0.005]	0.006 [0.005]	0.016 [0.014]	0.023* [0.014]	-0.001 [0.005]	0 [0.005]	0.016 [0.015]	0.02 [0.015]
Ind. Concentration	0.011*** [0.003]	0.010*** [0.003]	0.055*** [0.010]	0.054*** [0.010]	0.004 [0.004]	0.004 [0.004]	0.031*** [0.010]	0.031*** [0.010]
Constant	-0.017 [0.011]	-0.009 [0.011]	-0.085* [0.044]	-0.086** [0.038]	-0.028* [0.015]	-0.016 [0.014]	-0.121*** [0.039]	-0.105*** [0.036]
Adjusted R-sq	0.268	0.27	0.201	0.204	0.287	0.294	0.203	0.209
Observations	5514	5360	5514	5360	6904	6724	6904	6724

Panel E1: Private target deals covering bidders with single deal in a year

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.001 [0.005]		0.008 [0.013]		0.005 [0.005]		0.012 [0.013]	
Post Years	0.005 [0.005]	0.005*** [0.001]	0.015 [0.020]	0.012*** [0.003]	-0.001 [0.005]	0.001 [0.001]	-0.015* [0.008]	0.006 [0.004]
Completed*Post Years	0 [0.005]		-0.003 [0.020]		0.003 [0.005]		0.020** [0.009]	
Size	0.001 [0.000]	0 [0.000]	0.005*** [0.001]	0.005*** [0.001]	0 [0.001]	0 [0.001]	0.003** [0.001]	0.004** [0.001]
MtoB Ratio	0.001*** [0.000]	0.001*** [0.000]	0.001* [0.001]	0.001* [0.001]	0.001*** [0.000]	0.001*** [0.000]	0.002** [0.001]	0.002** [0.001]
Profitability	-0.028*** [0.004]	-0.028*** [0.004]	-0.094*** [0.015]	-0.094*** [0.015]	-0.037*** [0.006]	-0.039*** [0.007]	-0.108*** [0.020]	-0.115*** [0.021]
Cash Holding	0.073*** [0.006]	0.076*** [0.006]	0.280*** [0.027]	0.290*** [0.028]	0.083*** [0.009]	0.084*** [0.009]	0.341*** [0.043]	0.347*** [0.043]
Leverage	-0.015*** [0.003]	-0.016*** [0.003]	-0.009 [0.011]	-0.008 [0.011]	-0.011*** [0.004]	-0.012*** [0.004]	0.009 [0.013]	0.006 [0.013]
Tangibility	0.006** [0.003]	0.007*** [0.003]	0.020** [0.009]	0.024*** [0.009]	0.006 [0.004]	0.006* [0.004]	0.016 [0.011]	0.019* [0.011]
Ind. Concentration	0.009*** [0.002]	0.009*** [0.002]	0.045*** [0.007]	0.045*** [0.007]	0.004 [0.003]	0.004 [0.003]	0.029*** [0.008]	0.030*** [0.008]
Constant	-0.014 [0.009]	-0.011 [0.008]	-0.095*** [0.026]	-0.086*** [0.023]	-0.008 [0.011]	-0.002 [0.009]	-0.089** [0.040]	-0.078** [0.039]
Adjusted R-sq	0.29	0.292	0.201	0.202	0.312	0.316	0.237	0.24
Observations	11162	10904	11162	10904	12970	12682	12970	12682

Panel E2: Public target deals covering bidders with single deal in a year

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.017 [0.014]		-0.076 [0.105]		0.019 [0.019]		0.07 [0.057]	
Post Years	0.023 [0.028]	-0.002 [0.002]	-0.006 [0.140]	0.001 [0.006]	0.042 [0.039]	-0.001 [0.001]	0.052 [0.065]	-0.006 [0.004]
Completed*Post Years	-0.026 [0.028]		0.008 [0.142]		-0.043 [0.039]		-0.059 [0.064]	
Size	0.001 [0.001]	0.001 [0.001]	0.002 [0.003]	0.003 [0.003]	0.001 [0.001]	0.002* [0.001]	0.004 [0.003]	0.004 [0.003]
MtoB Ratio	0 [0.001]	0 [0.001]	0 [0.004]	0 [0.001]	-0.001 [0.001]	0 [0.000]	-0.003 [0.002]	-0.001 [0.001]
Profitability	-0.043*** [0.013]	-0.044** [0.020]	-0.067** [0.032]	-0.044 [0.030]	-0.037*** [0.010]	-0.033** [0.017]	-0.106*** [0.040]	-0.131** [0.064]
Cash Holding	0.046** [0.022]	0.044* [0.023]	0.250*** [0.096]	0.224** [0.100]	0.050* [0.025]	0.043* [0.025]	0.260* [0.140]	0.232* [0.137]
Leverage	-0.001 [0.008]	-0.004 [0.006]	0.011 [0.027]	0.005 [0.016]	0.002 [0.009]	-0.005 [0.005]	0.007 [0.024]	-0.013 [0.016]
Tangibility	0.015 [0.014]	0.018 [0.015]	-0.009 [0.034]	0 [0.033]	0.016* [0.008]	0.014 [0.009]	0.052 [0.035]	0.063 [0.041]
Ind. Concentration	-0.001 [0.006]	-0.001 [0.006]	0.067*** [0.022]	0.054** [0.022]	0.009** [0.004]	0.010** [0.004]	0.043** [0.020]	0.038* [0.020]
Constant	-0.034** [0.017]	-0.023 [0.015]	0.047 [0.124]	-0.05 [0.054]	-0.048** [0.023]	-0.031* [0.017]	-0.099 [0.065]	-0.055 [0.058]
Adjusted R-sq	0.436	0.436	0.29	0.317	0.348	0.309	0.249	0.248
Observations	1024	988	1024	988	1597	1567	1597	1567

Table 4: Cross-border acquisitions and the role of income level differences between countries of bidders and targets

This table report OLS estimations to explore differences in bidders' R&D expenditures between pre-deal (-1 and -3 to -1) and post-deal (+1 and +1 to +3) periods for; 1) all deals comparing completed deals (Treated) and withdrawn deals (Control); and 2) completed deals only. Same, higher, and lower subsample are determined with a comparison of World Bank's definition of income levels between countries of bidders and targets. The sample period is 1990-2014. Deals are included when bidders have complete financial data in each year for pre- and post-deal periods. All estimations include industry and year fixed effects. The symbols ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A1: Cross-border deals for bidders with single deal in a year

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.006 [0.011]		-0.002 [0.028]		0.003 [0.008]		0.00 [0.015]	
Post Years	-0.002 [0.006]	0.005*** [0.001]	-0.013 [0.026]	0.013*** [0.005]	0.001 [0.012]	0.002 [0.002]	-0.018 [0.015]	0.002 [0.007]
Completed*Post Years	0.007 [0.006]		0.024 [0.026]		0.001 [0.012]		0.02 [0.015]	
Size	-0.001 [0.001]	-0.001 [0.001]	0.002 [0.002]	0.002 [0.002]	-0.001 [0.001]	0 [0.001]	0.003 [0.003]	0.003 [0.003]
MtoB Ratio	0.001* [0.000]	0.001* [0.000]	0 [0.001]	0 [0.001]	0.001*** [0.001]	0.001** [0.001]	0.002 [0.002]	0.002 [0.002]
Profitability	-0.020*** [0.006]	-0.020*** [0.006]	-0.071*** [0.022]	-0.071*** [0.023]	-0.034*** [0.010]	-0.032*** [0.010]	-0.122*** [0.035]	-0.118*** [0.035]
Cash Holding	0.066*** [0.011]	0.070*** [0.011]	0.284*** [0.048]	0.299*** [0.049]	0.069*** [0.015]	0.070*** [0.015]	0.263*** [0.076]	0.265*** [0.076]
Leverage	-0.017*** [0.006]	-0.019*** [0.006]	-0.030* [0.016]	-0.034** [0.016]	-0.014* [0.008]	-0.016** [0.008]	-0.024 [0.018]	-0.028 [0.018]
Tangibility	-0.007 [0.006]	-0.005 [0.006]	-0.004 [0.020]	-0.001 [0.020]	-0.003 [0.009]	-0.002 [0.009]	-0.009 [0.028]	-0.008 [0.028]
Ind. Concentration	0.013*** [0.004]	0.013*** [0.004]	0.060*** [0.013]	0.061*** [0.013]	0.007 [0.005]	0.007 [0.005]	0.048*** [0.017]	0.047*** [0.017]
Constant	0.005 [0.022]	0 [0.018]	-0.075 [0.055]	-0.078* [0.046]	0.022 [0.023]	0.025 [0.021]	0.039 [0.050]	0.055 [0.050]
Adjusted R-sq	0.271	0.27	0.22	0.217	0.329	0.32	0.267	0.259
Observations	3410	3332	3410	3332	3933	3837	3933	3837

Panel A2: Cross-border deals for bidders with single deal in a year for more R&D intense industries

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.021 [0.019]		-0.055 [0.041]		0.012 [0.012]		0.024 [0.040]	
Post Years	-0.017 [0.012]	0.010*** [0.003]	-0.091* [0.055]	0.029*** [0.010]	0.003 [0.026]	0.005 [0.004]	-0.068 [0.041]	0.01 [0.015]
Completed*Post Years	0.026** [0.013]		0.120** [0.057]		0.002 [0.026]		0.078* [0.040]	
Size	-0.002 [0.001]	-0.002 [0.001]	0.005 [0.004]	0.005 [0.004]	0 [0.002]	0 [0.002]	0.014** [0.006]	0.013** [0.006]
MtoB Ratio	0.002*** [0.001]	0.002*** [0.001]	0.002 [0.002]	0.003 [0.002]	0.003*** [0.001]	0.002*** [0.001]	0.004* [0.002]	0.004* [0.002]
Profitability	-0.064*** [0.014]	-0.062*** [0.014]	-0.212*** [0.058]	-0.208*** [0.060]	-0.092*** [0.016]	-0.089*** [0.017]	-0.323*** [0.054]	-0.319*** [0.056]
Cash Holding	0.100*** [0.019]	0.103*** [0.019]	0.464*** [0.079]	0.472*** [0.080]	0.096*** [0.024]	0.096*** [0.024]	0.467*** [0.117]	0.468*** [0.118]
Leverage	-0.020* [0.010]	-0.021** [0.010]	-0.017 [0.031]	-0.021 [0.031]	-0.023 [0.016]	-0.026 [0.016]	-0.019 [0.042]	-0.02 [0.042]
Tangibility	-0.034** [0.016]	-0.032** [0.016]	-0.069 [0.053]	-0.068 [0.054]	-0.037 [0.032]	-0.035 [0.032]	-0.153* [0.088]	-0.155* [0.089]
Ind. Concentration	-0.001 [0.009]	0.001 [0.008]	0.047* [0.025]	0.050** [0.025]	-0.004 [0.011]	-0.003 [0.011]	0.043 [0.029]	0.042 [0.030]
Constant	0.056* [0.031]	0.036 [0.025]	0.019 [0.088]	-0.034 [0.085]	0.036 [0.042]	0.049 [0.042]	0.02 [0.088]	0.051 [0.083]
Adjusted R-sq	0.297	0.287	0.318	0.309	0.353	0.333	0.408	0.399
Observations	1570	1544	1570	1544	1662	1626	1662	1626

Panel A3: Domestic deals for bidders with single deal in a year

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.006 [0.004]		0.003 [0.019]		0.008 [0.006]		0.024 [0.015]	
Post Years	0.009 [0.007]	0.004*** [0.001]	0.016 [0.032]	0.011*** [0.003]	0.004 [0.007]	0.001 [0.001]	0.002 [0.013]	0.004 [0.004]
Completed*Post Years	-0.005 [0.007]		-0.005 [0.032]		-0.004 [0.007]		0.001 [0.013]	
Size	0.001 [0.000]	0.001 [0.000]	0.005*** [0.001]	0.005*** [0.001]	-0.001 [0.001]	-0.001 [0.001]	0.003* [0.001]	0.003** [0.001]
MtoB Ratio	0.001*** [0.000]	0.001*** [0.000]	0.001 [0.001]	0.001* [0.001]	0.001** [0.000]	0.001*** [0.000]	0.001 [0.001]	0.002* [0.001]
Profitability	-0.034*** [0.005]	-0.034*** [0.006]	-0.106*** [0.018]	-0.106*** [0.019]	-0.037*** [0.007]	-0.040*** [0.008]	-0.101*** [0.021]	-0.113*** [0.024]
Cash Holding	0.073*** [0.007]	0.074*** [0.007]	0.273*** [0.031]	0.280*** [0.031]	0.079*** [0.011]	0.080*** [0.011]	0.351*** [0.049]	0.355*** [0.049]
Leverage	-0.012*** [0.003]	-0.013*** [0.004]	0 [0.012]	0.002 [0.012]	-0.007* [0.004]	-0.009** [0.004]	0.019 [0.015]	0.016 [0.015]
Tangibility	0.010*** [0.003]	0.012*** [0.003]	0.022** [0.010]	0.027*** [0.010]	0.007** [0.004]	0.008** [0.004]	0.019* [0.011]	0.024** [0.012]
Ind. Concentration	0.007*** [0.002]	0.006*** [0.002]	0.040*** [0.007]	0.040*** [0.007]	0.003 [0.002]	0.003 [0.002]	0.023*** [0.007]	0.023*** [0.007]
Constant	-0.017* [0.009]	-0.012 [0.009]	-0.085*** [0.031]	-0.089*** [0.025]	-0.014 [0.012]	-0.009 [0.011]	-0.148*** [0.040]	-0.137*** [0.038]
Adjusted R-sq	0.306	0.309	0.208	0.208	0.311	0.318	0.229	0.236
Observations	8776	8560	8776	8560	10634	10412	10634	10412

Panel A4: Domestic deals for bidders with single deal in a year for more R&D intense industries

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.016 [0.010]		0.005 [0.049]		0.031** [0.016]		0.086** [0.041]	
Post Years	0.013 [0.012]	0.009*** [0.002]	-0.001 [0.070]	0.024*** [0.007]	0.004 [0.008]	0 [0.003]	0.014 [0.021]	0.008 [0.009]
Completed*Post Years	-0.004 [0.012]		0.026 [0.071]		-0.004 [0.008]		-0.008 [0.021]	
Size	0 [0.001]	0 [0.001]	0.006** [0.002]	0.006*** [0.002]	-0.002* [0.001]	-0.002* [0.001]	0.004 [0.003]	0.005* [0.003]
MtoB Ratio	0.001*** [0.000]	0.001*** [0.000]	0.002* [0.001]	0.003* [0.001]	0.001** [0.000]	0.001** [0.000]	0.002* [0.001]	0.003* [0.001]
Profitability	-0.049*** [0.009]	-0.051*** [0.009]	-0.162*** [0.029]	-0.169*** [0.031]	-0.054*** [0.011]	-0.060*** [0.012]	-0.153*** [0.034]	-0.169*** [0.036]
Cash Holding	0.102*** [0.010]	0.102*** [0.011]	0.410*** [0.047]	0.420*** [0.048]	0.103*** [0.015]	0.104*** [0.016]	0.493*** [0.070]	0.495*** [0.071]
Leverage	-0.018** [0.007]	-0.018** [0.007]	0.016 [0.025]	0.023 [0.026]	-0.013* [0.008]	-0.015* [0.008]	0.043 [0.031]	0.038 [0.031]
Tangibility	0.016 [0.010]	0.018* [0.010]	0.012 [0.029]	0.02 [0.029]	0.015 [0.010]	0.015 [0.010]	0.005 [0.030]	0.006 [0.030]
Ind. Concentration	0.009* [0.005]	0.009* [0.005]	0.074*** [0.017]	0.072*** [0.018]	0.006 [0.006]	0.007 [0.006]	0.045** [0.019]	0.047** [0.019]
Constant	-0.011 [0.033]	0.005 [0.036]	0.008 [0.148]	0.025 [0.157]	-0.054** [0.023]	-0.019 [0.018]	-0.210*** [0.072]	-0.118* [0.063]
Adjusted R-sq	0.305	0.309	0.251	0.257	0.321	0.329	0.28	0.287
Observations	3694	3610	3694	3610	4420	4354	4420	4354

Panel B1: Income level differences with R&D/Assets for more R&D intense industries

	-1 vs +1						(-3 to -1) vs (+1 to +3)					
	Same		Higher		Lower		Same		Higher		Lower	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.021		-0.017				0.02					
	[0.025]		[0.023]				[0.014]					
Post Years	-0.017	0.013***	-0.039	-0.009		0.00	0.001	0.007		-0.001		0.01
	[0.013]	[0.003]	[0.027]	[0.012]		[0.008]	[0.024]	[0.004]		[0.014]		[0.006]
Completed*Post Years	0.030**		0.029				0.006					
	[0.014]		[0.028]				[0.024]					
Size	-0.002	-0.002	0	0.001		0.005	-0.002	-0.002		0.005		0.004
	[0.001]	[0.001]	[0.004]	[0.004]		[0.006]	[0.002]	[0.002]		[0.003]		[0.004]
MtoB Ratio	0.002**	0.002**	0.004**	0.004**		-0.002	0.003***	0.003***		0.001		-0.001
	[0.001]	[0.001]	[0.002]	[0.002]		[0.002]	[0.001]	[0.001]		[0.001]		[0.005]
Profitability	-0.078***	-0.074***	-0.052**	-0.051**		-0.056	-0.093***	-0.087***		-0.110***		-0.043
	[0.017]	[0.017]	[0.022]	[0.022]		[0.058]	[0.021]	[0.021]		[0.010]		[0.029]
Cash Holding	0.110***	0.111***	0.074	0.081		0.047	0.104***	0.104***		0.152***		0.113
	[0.021]	[0.021]	[0.053]	[0.055]		[0.036]	[0.027]	[0.028]		[0.050]		[0.085]
Leverage	-0.030***	-0.031***	0.025	0.025		0.039	-0.037*	-0.039**		0.029		-0.006
	[0.011]	[0.011]	[0.028]	[0.028]		[0.054]	[0.019]	[0.019]		[0.026]		[0.026]
Tangibility	-0.028	-0.027	-0.021	-0.029		-0.076	-0.007	-0.006		-0.058		0.03
	[0.018]	[0.018]	[0.049]	[0.051]		[0.076]	[0.033]	[0.033]		[0.055]		[0.041]
Ind. Concentration	0.001	0.004	0.018	0.015		-0.025	-0.003	-0.001		0.016		-0.001
	[0.009]	[0.009]	[0.038]	[0.039]		[0.020]	[0.011]	[0.012]		[0.024]		[0.015]
BidderPatentRight	0.029***	0.027***	0.016	0.017		-0.018	0.026*	0.023*		0.01		0.004
	[0.009]	[0.009]	[0.013]	[0.014]		[0.022]	[0.014]	[0.014]		[0.014]		[0.006]
TargetPatentRight	0.013*	0.014*	0.041**	0.044**		0.041	0.025*	0.024		0.022		0.008
	[0.008]	[0.008]	[0.017]	[0.017]		[0.029]	[0.014]	[0.015]		[0.019]		[0.008]
Constant	-0.083*	-0.101**	-0.109*	-0.135**		-0.155	-0.172**	-0.134*		-0.177**		-0.096
	[0.045]	[0.040]	[0.059]	[0.061]		[0.120]	[0.079]	[0.080]		[0.074]		[0.057]
Adjusted R-sq	0.305	0.294	0.307	0.318		-0.067	0.327	0.306		0.699		0.773
Observations	1252	1232	172	166		118	1326	1290		174		138

Panel B2: Income level differences with R&D/Assets for less R&D intense industries

	-1 vs +1						(-3 to -1) vs (+1 to +3)					
	Same		Higher		Lower		Same		Higher		Lower	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.003		0.001		0		0.001		-0.006		0	
	[0.003]		[0.004]		[0.000]		[0.002]		[0.010]		[0.000]	
Post Years	0.003	0	-0.002	0.001	0	0	0.003	-0.001	-0.002	0	0	0
	[0.003]	[0.001]	[0.002]	[0.001]	[0.000]	[0.000]	[0.002]	[0.001]	[0.003]	[0.002]	[0.000]	[0.000]
Completed*Post Years	-0.003		0.003		0		-0.003		0.002		0	
	[0.003]		[0.002]		[0.000]		[0.002]		[0.005]		[0.000]	
Size	0	0	0	0	0.000**	0.000**	0	0	0.001	0.001	0	0
	[0.000]	[0.000]	[0.001]	[0.001]	[0.000]	[0.000]	[0.001]	[0.001]	[0.000]	[0.001]	[0.000]	[0.000]
MtoB Ratio	-0.000*	-0.000*	0	0	0	0	0	0	0	0	0	0
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Profitability	0.001	0.001	0	0	0	0	0	0	-0.001	-0.001	0.001	0.001
	[0.002]	[0.002]	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]	[0.001]	[0.001]	[0.001]	[0.001]
Cash Holding	0.018*	0.018*	0.005	0.006	0.001	0	0.001	0	0.005	0.006	0.001	0.001
	[0.010]	[0.011]	[0.006]	[0.006]	[0.001]	[0.001]	[0.009]	[0.009]	[0.006]	[0.007]	[0.001]	[0.001]
Leverage	-0.008**	-0.008**	-0.009	-0.009	0	0	-0.010**	-0.010**	-0.01	-0.009	0	0
	[0.003]	[0.003]	[0.006]	[0.007]	[0.000]	[0.000]	[0.005]	[0.005]	[0.011]	[0.011]	[0.001]	[0.001]
Tangibility	-0.006**	-0.006**	-0.004	-0.004	0.001	0.001	-0.006**	-0.007**	-0.002	-0.002	0.001	0.001
	[0.002]	[0.002]	[0.003]	[0.003]	[0.001]	[0.001]	[0.003]	[0.003]	[0.003]	[0.003]	[0.001]	[0.001]
Ind. Concentration	0.003	0.003	0.003	0.003	0.000*	0.001*	0.001	0.001	0.006*	0.005*	0	0
	[0.002]	[0.002]	[0.003]	[0.003]	[0.000]	[0.000]	[0.002]	[0.002]	[0.003]	[0.003]	[0.000]	[0.000]
BidderPatentRight	-0.001	-0.001	0.002	0.003	0.000*	0.000*	0.006*	0.006	0.007	0.008	0	0
	[0.003]	[0.003]	[0.004]	[0.004]	[0.000]	[0.000]	[0.004]	[0.004]	[0.007]	[0.007]	[0.000]	[0.000]
TargetPatentRight	0.002	0.002	0.001	0	0	0	0.002	0.002	-0.003	-0.004	0	0
	[0.002]	[0.002]	[0.002]	[0.002]	[0.000]	[0.000]	[0.002]	[0.002]	[0.003]	[0.004]	[0.000]	[0.000]
Constant	-0.002	0.001	-0.011	-0.011	-0.002**	-0.002***	-0.004	-0.002	-0.036	-0.046	-0.001	-0.001
	[0.012]	[0.012]	[0.016]	[0.020]	[0.001]	[0.001]	[0.014]	[0.015]	[0.026]	[0.034]	[0.001]	[0.001]
Adjusted R-sq	0.067	0.069	-0.028	-0.026	0.245	0.255	0.155	0.156	0.077	0.091	0.083	0.084
Observations	1162	1146	428	402	142	138	1365	1341	516	492	252	240

Panel C1: Income level differences with R&D/Sales for more R&D intense industries

	-1 vs +1						(-3 to -1) vs (+1 to +3)					
	Same		Higher		Lower		Same		Higher		Lower	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.045		-0.061				0.012					
	[0.046]		[0.068]				[0.024]					
Post Years	-0.097*	0.040***	-0.074	0.016		-0.001	-0.075*	0.016		-0.054		0.005
	[0.052]	[0.013]	[0.087]	[0.033]		[0.014]	[0.044]	[0.016]		[0.074]		[0.009]
Completed*Post Years	0.136**		0.086				0.090**					
	[0.055]		[0.102]				[0.043]					
Size	0.003	0.003	0	0		0.006	0.009	0.009		0.013		0.005
	[0.004]	[0.004]	[0.007]	[0.007]		[0.007]	[0.006]	[0.006]		[0.013]		[0.005]
MtoB Ratio	0.002	0.002	0.008**	0.008**		-0.003	0.004	0.004		0.006		-0.003
	[0.002]	[0.003]	[0.004]	[0.004]		[0.002]	[0.003]	[0.003]		[0.006]		[0.007]
Profitability	-0.313***	-0.309***	-0.022	-0.02		-0.07	-0.312***	-0.303***		-0.365***		-0.05
	[0.059]	[0.062]	[0.031]	[0.031]		[0.067]	[0.069]	[0.073]		[0.062]		[0.034]
Cash Holding	0.522***	0.526***	0.26	0.279		0.092*	0.500***	0.509***		0.650*		0.172
	[0.090]	[0.091]	[0.218]	[0.230]		[0.047]	[0.136]	[0.138]		[0.355]		[0.131]
Leverage	-0.017	-0.02	0.089	0.09		0.048	-0.035	-0.035		0.024		-0.01
	[0.038]	[0.039]	[0.082]	[0.081]		[0.069]	[0.051]	[0.052]		[0.075]		[0.034]
Tangibility	-0.077	-0.075	-0.095	-0.104		-0.095	-0.115	-0.114		-0.222		0.048
	[0.062]	[0.063]	[0.153]	[0.161]		[0.096]	[0.091]	[0.093]		[0.226]		[0.064]
Ind. Concentration	0.029	0.034	0.157	0.163		-0.038	0.019	0.021		0.048		0.001
	[0.025]	[0.025]	[0.118]	[0.122]		[0.025]	[0.029]	[0.030]		[0.110]		[0.017]
BidderPatentRight	0.01	0.008	0.024	0.021		-0.023	0.032	0.03		0.01		0.005
	[0.024]	[0.025]	[0.034]	[0.035]		[0.028]	[0.044]	[0.048]		[0.059]		[0.007]
TargetPatentRight	0.046**	0.047**	0.027	0.03		0.056	0.081**	0.081**		0.02		0.017
	[0.022]	[0.023]	[0.053]	[0.056]		[0.037]	[0.035]	[0.036]		[0.096]		[0.010]
Constant	-0.166	-0.210*	-0.089	-0.143		-0.205	-0.528**	-0.507*		-0.263		-0.157*
	[0.113]	[0.114]	[0.167]	[0.131]		[0.158]	[0.255]	[0.269]		[0.302]		[0.083]
Adjusted R-sq	0.382	0.373	-0.038	-0.031		0.216	0.372	0.359		0.609		0.763
Observations	1252	1232	172	166		118	1326	1290		174		138

Panel C2: Income level differences with R&D/Sales for less R&D intense industries

	-1 vs +1						(-3 to -1) vs (+1 to +3)					
	Same		Higher		Lower		Same		Higher		Lower	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.004		0.029		0		0.006		-0.023		0.001	
	[0.004]		[0.034]		[0.001]		[0.006]		[0.033]		[0.000]	
Post Years	0.003	-0.002	0.008	-0.009	0	0	0.007	-0.007	-0.002	-0.015	0	0
	[0.003]	[0.003]	[0.018]	[0.011]	[0.000]	[0.000]	[0.005]	[0.007]	[0.017]	[0.016]	[0.000]	[0.000]
Completed*Post Years	-0.005		-0.017		0		-0.014		-0.016		0	
	[0.004]		[0.024]		[0.000]		[0.009]		[0.028]		[0.000]	
Size	0	0	0.001	0.001	0.000**	0.000**	0.001	0.001	-0.007	-0.009	0	0
	[0.001]	[0.001]	[0.002]	[0.002]	[0.000]	[0.000]	[0.001]	[0.001]	[0.008]	[0.010]	[0.000]	[0.000]
MtoB Ratio	0	0	-0.001	-0.001	0	0	0	0	0	0	0	0
	[0.000]	[0.000]	[0.001]	[0.001]	[0.000]	[0.000]	[0.001]	[0.001]	[0.001]	[0.001]	[0.000]	[0.000]
Profitability	-0.002	-0.002	-0.002	-0.003	-0.001	-0.001	-0.016	-0.016	-0.035	-0.034	0.001	0.001
	[0.004]	[0.004]	[0.004]	[0.005]	[0.001]	[0.001]	[0.012]	[0.012]	[0.026]	[0.024]	[0.001]	[0.001]
Cash Holding	0.007	0.008	0.093	0.113	0.001	0.001	-0.028*	-0.028*	-0.083	-0.09	0.001	0.001
	[0.011]	[0.011]	[0.066]	[0.079]	[0.002]	[0.002]	[0.015]	[0.015]	[0.096]	[0.102]	[0.002]	[0.002]
Leverage	-0.018	-0.018	-0.008	-0.011	0	-0.001	-0.033	-0.033	-0.009	-0.003	-0.001	-0.001
	[0.011]	[0.011]	[0.017]	[0.017]	[0.001]	[0.001]	[0.020]	[0.020]	[0.025]	[0.030]	[0.001]	[0.001]
Tangibility	-0.011*	-0.011*	-0.007	-0.001	0.001	0.001	-0.001	-0.002	-0.054	-0.059	0.001	0.001
	[0.006]	[0.006]	[0.011]	[0.010]	[0.001]	[0.001]	[0.011]	[0.010]	[0.052]	[0.055]	[0.001]	[0.001]
Ind. Concentration	0.008*	0.008	0.01	0.009	0.001*	0.001*	0.004	0.003	0.052	0.058	0.001	0.001
	[0.005]	[0.005]	[0.008]	[0.008]	[0.000]	[0.000]	[0.004]	[0.004]	[0.035]	[0.040]	[0.000]	[0.000]
BidderPatentRight	-0.013	-0.014	-0.008	-0.008	0	0	-0.008	-0.009	0.006	-0.002	0	0
	[0.011]	[0.011]	[0.019]	[0.020]	[0.000]	[0.000]	[0.011]	[0.012]	[0.014]	[0.016]	[0.000]	[0.000]
TargetPatentRight	0.007	0.007	0.011	0.011	0	0	0.006	0.007	0.018	0.019	0	0
	[0.005]	[0.005]	[0.012]	[0.013]	[0.000]	[0.000]	[0.004]	[0.004]	[0.020]	[0.022]	[0.000]	[0.000]
Constant	0.033	0.04	-0.023	0.001	-0.003*	-0.003**	0.012	0.021	0.056	0.096	-0.001	-0.001
	[0.039]	[0.042]	[0.038]	[0.063]	[0.002]	[0.001]	[0.022]	[0.026]	[0.107]	[0.149]	[0.002]	[0.002]
Adjusted R-sq	0.016	0.017	-0.072	-0.063	0.128	0.133	0.15	0.151	0.049	0.061	0.148	0.147
Observations	1162	1146	428	402	142	138	1365	1341	516	492	252	240

Table 5: The role of cultural distance between countries of bidders and targets in cross-border acquisitions

This table report OLS estimations to explore differences in bidders' R&D expenditures between pre-deal (-1 and -3 to -1) and post-deal (+1 and +1 to +3) periods for; 1) all deals comparing completed deals (Treated) and withdrawn deals (Control); and 2) completed deals only. High and Low cultural distance subsample are determined with the median of cultural distance (CD) measured by Hofstede and Globe cultural dimensions between countries of bidders and targets. The sample period is 1990-2014. Deals are included when bidders have complete financial data in each year for pre- and post-deal periods. All estimations include industry and year fixed effects. The symbols ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A1: R&D/Assets for more R&D intense industries with cultural distance measured by using Hofstede cultural dimension

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	High CD		Low CD		High CD		Low CD	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.017 [0.025]		0.009*** [0.003]		0.016 [0.015]		.	.
Post Years	-0.026** [0.013]	0.009*** [0.003]		0.012 [0.013]	0 [0.024]	0.008 [0.005]	-0.009 [0.013]	-0.009 [0.013]
Completed*Post Years	0.034** [0.013]		-0.002 [0.001]		0.008 [0.024]		.	.
Size	-0.002 [0.001]	-0.002 [0.001]	0.002*** [0.001]	-0.005 [0.005]	0 [0.002]	-0.001 [0.002]	0.001 [0.006]	0.001 [0.006]
MtoB Ratio	0.002*** [0.001]	0.002*** [0.001]	-0.058*** [0.014]	0.001 [0.002]	0.003*** [0.001]	0.002** [0.001]	0.003** [0.001]	0.003** [0.001]
Profitability	-0.062*** [0.015]	-0.058*** [0.014]	0.120*** [0.020]	-0.098*** [0.022]	-0.098*** [0.018]	-0.091*** [0.019]	-0.091** [0.043]	-0.091** [0.043]
Cash Holding	0.117*** [0.019]	0.120*** [0.020]	-0.022** [0.011]	0.021 [0.043]	0.112*** [0.031]	0.112*** [0.032]	0.064 [0.038]	0.064 [0.038]
Leverage	-0.020* [0.011]	-0.022** [0.011]	-0.018 [0.015]	-0.025 [0.033]	-0.017 [0.021]	-0.018 [0.021]	-0.043 [0.031]	-0.043 [0.031]
Tangibility	-0.018 [0.015]	-0.018 [0.015]	0.009 [0.009]	-0.112* [0.058]	-0.018 [0.027]	-0.019 [0.028]	0.014 [0.085]	0.014 [0.085]
Ind. Concentration	0.006 [0.009]	0.009 [0.009]	0.023*** [0.006]	0.003 [0.036]	0.007 [0.010]	0.008 [0.011]	-0.005 [0.032]	-0.005 [0.032]
BidderPatentRight	0.024*** [0.006]	0.023*** [0.006]	0.026*** [0.006]	0.045 [0.049]	0.014 [0.010]	0.013 [0.010]	0.031 [0.036]	0.031 [0.036]
TargetPatentRight	0.026*** [0.006]	0.026*** [0.006]	-0.163*** [0.032]	0.014 [0.054]	0.032*** [0.010]	0.032*** [0.010]	-0.01 [0.040]	-0.01 [0.040]
Constant	-0.148*** [0.039]	-0.163*** [0.032]	0.283 1362	0.029 [0.426]	-0.157*** [0.060]	-0.133** [0.060]	-0.087 [0.278]	-0.087 [0.278]
Adjusted R-sq	0.291	0.283	-0.078	0.343	0.357	0.334	0.212	0.212
Observations	1386	1362	318	164	1278	1242	372	372

Panel A2: R&D/Assets for less R&D intense industries with cultural distance measured by using Hofstede cultural dimension

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	High CD		Low CD		High CD		Low CD	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.004 [0.003]		0.006 [0.006]		0.004 [0.004]		0.006 [0.004]	
Post Years	-0.001 [0.002]	0 [0.000]	-0.002 [0.005]	-0.002 [0.002]	-0.001 [0.002]	-0.001 [0.001]	0.002 [0.004]	-0.002 [0.002]
Completed*Post Years	0.001 [0.002]		-0.001 [0.005]		0.001 [0.002]		-0.004 [0.003]	
Size	0 [0.000]	0 [0.000]	0 [0.001]	0 [0.001]	0 [0.000]	0.001 [0.000]	0 [0.001]	0 [0.001]
MtoB Ratio	-0.000* [0.000]	-0.000* [0.000]	0 [0.000]	0 [0.000]	0 [0.000]	0 [0.000]	0 [0.000]	0 [0.000]
Profitability	0 [0.001]	0 [0.001]	0.002 [0.002]	0.002 [0.002]	0 [0.002]	0 [0.002]	0.001 [0.002]	0.001 [0.002]
Cash Holding	0.011* [0.006]	0.012** [0.006]	0.018 [0.020]	0.019 [0.021]	-0.002 [0.005]	-0.001 [0.005]	0.015 [0.014]	0.015 [0.014]
Leverage	-0.009*** [0.003]	-0.009*** [0.003]	-0.001 [0.005]	-0.001 [0.005]	-0.008* [0.004]	-0.009* [0.005]	-0.004 [0.004]	-0.004 [0.004]
Tangibility	-0.005** [0.002]	-0.005** [0.002]	-0.001 [0.003]	-0.002 [0.004]	-0.005* [0.003]	-0.005* [0.003]	-0.006 [0.004]	-0.006 [0.004]
Ind. Concentration	0.003** [0.001]	0.003** [0.001]	0 [0.003]	0 [0.003]	0.004* [0.002]	0.003 [0.002]	-0.001 [0.003]	-0.001 [0.003]
BidderPatentRight	0.002 [0.001]	0.002 [0.001]	0.001 [0.006]	0.001 [0.007]	0.006*** [0.002]	0.006*** [0.002]	0.014*** [0.005]	0.014*** [0.005]
TargetPatentRight	0.002* [0.001]	0.002* [0.001]	0.001 [0.001]	0.001 [0.001]	0 [0.002]	0 [0.002]	0 [0.002]	0 [0.002]
Constant	-0.020*** [0.006]	-0.016** [0.007]	-0.023 [0.044]	-0.018 [0.042]	-0.023* [0.012]	-0.023* [0.012]	-0.060* [0.034]	-0.054* [0.032]
Adjusted R-sq	0.071	0.076	-0.078	-0.075	0.117	0.124	0.236	0.237
Observations	1422	1386	318	308	1623	1569	522	516

Panel B1: R&D/Assets for more R&D intense industries with cultural distance measured by using Globe cultural dimension

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	High CD		Low CD		High CD		Low CD	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.017 [0.027]		-0.029 [0.029]		0.03 [0.020]		0.001 [0.034]	
Post Years	-0.019 [0.015]	0.009*** [0.003]	-0.033 [0.044]	0.020** [0.009]	0.002 [0.031]	0.006 [0.005]	-0.004 [0.017]	-0.006 [0.017]
Completed*Post Years	0.027* [0.015]		0.053 [0.045]		0.004 [0.031]		-0.002 [0.023]	
Size	-0.002 [0.001]	-0.002 [0.001]	-0.001 [0.003]	-0.001 [0.003]	-0.002 [0.002]	-0.002 [0.002]	0.011 [0.008]	0.011 [0.008]
MtoB Ratio	0.002** [0.001]	0.002** [0.001]	0.003** [0.001]	0.003** [0.001]	0.002*** [0.001]	0.002** [0.001]	0.005*** [0.001]	0.005*** [0.001]
Profitability	-0.060*** [0.015]	-0.056*** [0.014]	-0.105*** [0.020]	-0.105*** [0.020]	-0.094*** [0.017]	-0.089*** [0.018]	-0.037 [0.052]	-0.037 [0.052]
Cash Holding	0.117*** [0.020]	0.120*** [0.021]	0.044 [0.029]	0.044 [0.029]	0.120*** [0.029]	0.120*** [0.030]	0.057 [0.044]	0.057 [0.044]
Leverage	-0.017 [0.012]	-0.019 [0.012]	-0.014 [0.024]	-0.014 [0.024]	-0.006 [0.018]	-0.008 [0.018]	-0.039 [0.030]	-0.039 [0.030]
Tangibility	-0.017 [0.016]	-0.018 [0.016]	-0.100*** [0.033]	-0.100*** [0.033]	-0.025 [0.032]	-0.025 [0.032]	0.025 [0.067]	0.025 [0.067]
Ind. Concentration	0.002 [0.009]	0.005 [0.009]	0.043** [0.018]	0.044** [0.018]	0.002 [0.011]	0.003 [0.011]	0.034 [0.028]	0.034 [0.027]
BidderPatentRight	0.025*** [0.006]	0.025*** [0.006]	0.043** [0.017]	0.042** [0.018]	0.016 [0.011]	0.015 [0.011]	0.021 [0.029]	0.021 [0.028]
TargetPatentRight	0.025*** [0.006]	0.024*** [0.006]	0.014 [0.017]	0.014 [0.018]	0.031*** [0.010]	0.030*** [0.010]	-0.002 [0.043]	-0.002 [0.042]
Constant	-0.150*** [0.040]	-0.163*** [0.034]	-0.071 [0.112]	-0.1 [0.105]	-0.161*** [0.061]	-0.122** [0.060]	-0.204 [0.211]	-0.203 [0.210]
Adjusted R-sq	0.286	0.279	0.41	0.412	0.365	0.35	0.257	0.253
Observations	1298	1276	254	250	1416	1386	234	228

Panel B2: R&D/Assets for less R&D intense industries with cultural distance measured by using Globe cultural dimension

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	High CD		Low CD		High CD		Low CD	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.004 [0.003]		0.004 [0.004]		0.004 [0.003]		0.001 [0.002]	
Post Years	-0.001 [0.002]	0 [0.001]	-0.003 [0.004]	-0.001 [0.001]	-0.002 [0.002]	-0.001 [0.001]	-0.001 [0.002]	-0.001 [0.001]
Completed*Post Years	0.001 [0.002]		0.002 [0.004]		0.001 [0.002]		0 [0.001]	
Size	0 [0.000]	0 [0.000]	0 [0.000]	0 [0.000]	0 [0.000]	0 [0.001]	0 [0.000]	0 [0.000]
MtoB Ratio	-0.000* [0.000]	-0.000* [0.000]	0 [0.000]	0 [0.000]	0 [0.000]	0 [0.000]	0 [0.000]	0 [0.000]
Profitability	0.001 [0.001]	0.001 [0.001]	0 [0.001]	0 [0.001]	0 [0.002]	0 [0.002]	-0.001 [0.001]	-0.001 [0.001]
Cash Holding	0.012* [0.006]	0.013* [0.007]	0.011 [0.011]	0.012 [0.012]	-0.001 [0.006]	-0.001 [0.006]	0.009 [0.011]	0.009 [0.011]
Leverage	-0.010*** [0.003]	-0.010*** [0.003]	-0.001 [0.002]	-0.001 [0.002]	-0.011** [0.005]	-0.011** [0.005]	-0.001 [0.002]	-0.001 [0.002]
Tangibility	-0.006** [0.003]	-0.006** [0.003]	-0.002 [0.001]	-0.002 [0.001]	-0.005* [0.003]	-0.004 [0.003]	-0.004 [0.003]	-0.004 [0.003]
Ind. Concentration	0.005** [0.002]	0.005** [0.002]	-0.001 [0.002]	-0.001 [0.002]	0.004* [0.002]	0.003* [0.002]	0 [0.003]	0 [0.003]
BidderPatentRight	0.002 [0.001]	0.002 [0.002]	0.002 [0.001]	0.002 [0.001]	0.007*** [0.002]	0.007*** [0.002]	0.002 [0.002]	0.002 [0.002]
TargetPatentRight	0.002 [0.001]	0.002 [0.001]	0.001 [0.001]	0.001 [0.001]	0 [0.002]	0 [0.002]	0.001 [0.002]	0.001 [0.002]
Constant	-0.019*** [0.006]	-0.015** [0.007]	-0.02 [0.016]	-0.016 [0.013]	-0.012 [0.017]	-0.012 [0.017]	-0.015 [0.013]	-0.015 [0.012]
Adjusted R-sq	0.075	0.079	-0.074	-0.068	0.116	0.122	0.076	0.079
Observations	1266	1228	474	466	1626	1572	519	513

Panel C1: R&D/Sales for more R&D intense industries with cultural distance measured by using Hofstede cultural dimension

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	High CD		Low CD		High CD		Low CD	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.08 [0.062]		0.144 [0.113]		0.022 [0.027]		.	.
Post Years	-0.121* [0.064]	0.035*** [0.011]	-0.058 [0.087]	-0.025 [0.038]	-0.069 [0.051]	0.032 [0.020]	-0.061* [0.033]	-0.061* [0.033]
Completed*Post Years	0.155** [0.065]		0.034 [0.083]		0.100** [0.050]		.	.
Size	0 [0.004]	0 [0.004]	0.014 [0.018]	0.014 [0.018]	0.006 [0.006]	0.005 [0.006]	0.024 [0.018]	0.024 [0.018]
MtoB Ratio	0.002 [0.002]	0.003 [0.002]	-0.001 [0.007]	-0.001 [0.007]	0.002 [0.002]	0.002 [0.002]	0.008* [0.004]	0.008* [0.004]
Profitability	-0.168*** [0.055]	-0.159*** [0.055]	-0.427*** [0.118]	-0.427*** [0.118]	-0.372*** [0.055]	-0.366*** [0.059]	-0.212** [0.092]	-0.212** [0.092]
Cash Holding	0.542*** [0.092]	0.553*** [0.093]	0.145* [0.077]	0.145* [0.077]	0.578*** [0.161]	0.587*** [0.164]	0.269* [0.139]	0.269* [0.139]
Leverage	-0.017 [0.031]	-0.023 [0.031]	0 [0.088]	0 [0.087]	-0.023 [0.048]	-0.02 [0.050]	0.019 [0.068]	0.019 [0.068]
Tangibility	-0.007 [0.048]	-0.006 [0.048]	-0.366** [0.154]	-0.366** [0.153]	0.017 [0.076]	0.019 [0.078]	-0.303 [0.216]	-0.303 [0.216]
Ind. Concentration	0.045** [0.023]	0.051** [0.023]	0.093 [0.105]	0.093 [0.104]	0.031 [0.026]	0.032 [0.026]	0.03 [0.075]	0.03 [0.075]
BidderPatentRight	0.028** [0.014]	0.027* [0.014]	-0.126 [0.110]	-0.126 [0.109]	0.035 [0.022]	0.035 [0.023]	-0.033 [0.086]	-0.033 [0.086]
TargetPatentRight	0.052*** [0.018]	0.052*** [0.019]	-0.066 [0.111]	-0.066 [0.111]	0.073*** [0.024]	0.073*** [0.025]	0.093 [0.098]	0.093 [0.098]
Constant	-0.273*** [0.103]	-0.353*** [0.095]	0.999 [0.801]	1.143 [0.836]	-0.533*** [0.174]	-0.501*** [0.175]	-0.469 [0.688]	-0.469 [0.688]
Adjusted R-sq	0.313	0.307	0.433	0.439	0.432	0.421	0.263	0.263
Observations	1386	1362	166	164	1278	1242	372	372

Panel C2: R&D/Sales for less R&D intense industries with cultural distance measured by using Hofstede cultural dimension

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	High CD		Low CD		High CD		Low CD	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.017 [0.014]		0.005 [0.010]		0 [0.004]		0.018 [0.017]	
Post Years	0.004 [0.008]	-0.002 [0.003]	-0.003 [0.011]	-0.005 [0.008]	0 [0.005]	-0.061* [0.033]	-0.014 [0.021]	-0.024 [0.022]
Completed*Post Years	-0.006 [0.010]		-0.003 [0.011]		-0.004 [0.008]		-0.01 [0.009]	
Size	0.001 [0.001]	0.001 [0.001]	-0.002 [0.003]	-0.003 [0.004]	-0.002 [0.003]	0.024 [0.018]	0 [0.002]	0 [0.002]
MtoB Ratio	-0.001 [0.000]	-0.001 [0.000]	0 [0.001]	0.001 [0.001]	0 [0.000]	0.008* [0.004]	0.001 [0.001]	0.001 [0.002]
Profitability	-0.001 [0.003]	-0.002 [0.003]	0.004 [0.010]	0.004 [0.010]	-0.041 [0.033]	-0.212** [0.092]	-0.004 [0.008]	-0.004 [0.007]
Cash Holding	0.069* [0.035]	0.074* [0.038]	-0.02 [0.027]	-0.018 [0.027]	-0.049 [0.048]	0.269* [0.139]	0.004 [0.029]	0.004 [0.029]
Leverage	-0.004 [0.006]	-0.005 [0.006]	-0.033 [0.033]	-0.034 [0.034]	-0.012* [0.007]	0.019 [0.068]	-0.009 [0.020]	-0.009 [0.019]
Tangibility	-0.008 [0.005]	-0.008 [0.005]	0.008 [0.015]	0.009 [0.016]	-0.022 [0.020]	-0.303 [0.216]	-0.001 [0.024]	-0.001 [0.024]
Ind. Concentration	0.006** [0.003]	0.006* [0.003]	0.015 [0.013]	0.015 [0.013]	0.012 [0.009]	0.03 [0.075]	0.007 [0.017]	0.007 [0.017]
BidderPatentRight	0.001 [0.003]	0.001 [0.003]	-0.046 [0.048]	-0.048 [0.049]	0.008** [0.003]	-0.033 [0.086]	0.01 [0.012]	0.01 [0.012]
TargetPatentRight	0.002 [0.002]	0.002 [0.003]	0.002 [0.003]	0.002 [0.003]	0.006 [0.005]	0.093 [0.098]	-0.012 [0.010]	-0.012 [0.010]
Constant	-0.033*** [0.011]	-0.019 [0.012]	0.217 [0.210]	0.236 [0.226]	0.011 [0.038]	-0.469 [0.688]	-0.04 [0.080]	-0.023 [0.084]
Adjusted R-sq	0.012	0.017	-0.05	-0.05	0.045	0.263	0.283	0.285
Observations	1422	1386	318	308	1623	372	522	516

Panel D1: R&D/Sales for more R&D intense industries with cultural distance measured by using Globe cultural dimension

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	High CD		Low CD		High CD		Low CD	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.072 [0.069]		-0.057 [0.083]		0.018 [0.032]		0.002 [0.036]	
Post Years	-0.114 [0.071]	0.034*** [0.011]	-0.191 [0.139]	0.007 [0.026]	-0.103* [0.060]	0.022 [0.019]	-0.034 [0.028]	-0.013 [0.018]
Completed*Post Years	0.146** [0.073]		0.198 [0.140]		0.124** [0.059]		0.021 [0.028]	
Size	-0.001 [0.004]	-0.001 [0.004]	0.015 [0.010]	0.015 [0.010]	0.004 [0.005]	0.004 [0.005]	0.021** [0.010]	0.021** [0.010]
MtoB Ratio	0.001 [0.002]	0.001 [0.002]	0.008* [0.005]	0.008* [0.005]	0.003 [0.003]	0.003 [0.003]	0.008*** [0.002]	0.008*** [0.002]
Profitability	-0.160*** [0.054]	-0.150*** [0.055]	-0.471*** [0.102]	-0.473*** [0.102]	-0.320*** [0.055]	-0.313*** [0.057]	-0.074 [0.070]	-0.074 [0.070]
Cash Holding	0.549*** [0.092]	0.562*** [0.092]	0.170* [0.092]	0.171* [0.090]	0.614*** [0.149]	0.624*** [0.152]	0.116** [0.048]	0.116** [0.048]
Leverage	-0.014 [0.033]	-0.02 [0.032]	0.061 [0.079]	0.062 [0.079]	0.017 [0.043]	0.019 [0.044]	-0.019 [0.040]	-0.019 [0.040]
Tangibility	-0.024 [0.048]	-0.024 [0.048]	-0.291** [0.126]	-0.291** [0.126]	-0.122 [0.083]	-0.119 [0.083]	-0.008 [0.090]	-0.008 [0.090]
Ind. Concentration	0.042* [0.025]	0.049* [0.025]	0.134** [0.067]	0.137** [0.066]	0.037 [0.027]	0.038 [0.028]	0.032 [0.031]	0.033 [0.031]
BidderPatentRight	0.027* [0.014]	0.026* [0.014]	0.03 [0.049]	0.029 [0.051]	0.03 [0.024]	0.03 [0.024]	0.004 [0.030]	0.004 [0.030]
TargetPatentRight	0.054*** [0.017]	0.054*** [0.018]	-0.007 [0.076]	-0.006 [0.080]	0.079*** [0.025]	0.078*** [0.026]	0.017 [0.045]	0.017 [0.045]
Constant	-0.277*** [0.107]	-0.351*** [0.097]	-0.046 [0.322]	-0.102 [0.307]	-0.486*** [0.168]	-0.460*** [0.168]	-0.365* [0.212]	-0.362 [0.217]
Adjusted R-sq	0.316	0.311	0.455	0.459	0.424	0.415	0.291	0.288
Observations	1298	1276	254	250	1416	1386	234	228

Panel D2: R&D/Sales for less R&D intense industries with cultural distance measured by using Globe cultural dimension

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	High CD		Low CD		High CD		Low CD	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	0.021 [0.016]		0.001 [0.001]		-0.002 [0.005]		-0.003 [0.008]	
Post Years	0.008 [0.010]	-0.005 [0.005]	0.001 [0.001]	-0.001 [0.000]	-0.002 [0.005]	-0.011 [0.008]	-0.016 [0.010]	-0.004 [0.003]
Completed*Post Years	-0.013 [0.013]		-0.001 [0.001]		-0.009 [0.010]		0.012 [0.009]	
Size	0.001 [0.001]	0.001 [0.001]	0 [0.000]	0 [0.000]	0 [0.003]	-0.001 [0.003]	-0.001 [0.001]	-0.001 [0.001]
MtoB Ratio	-0.001 [0.001]	-0.001 [0.001]	0 [0.000]	0 [0.000]	0 [0.001]	0 [0.001]	-0.001 [0.000]	-0.001 [0.000]
Profitability	-0.003 [0.005]	-0.004 [0.005]	0 [0.001]	0 [0.001]	-0.058 [0.038]	-0.058 [0.038]	-0.003 [0.004]	-0.003 [0.004]
Cash Holding	0.080* [0.042]	0.086* [0.045]	0.001 [0.002]	0.001 [0.002]	-0.056 [0.052]	-0.057 [0.054]	-0.005 [0.021]	-0.005 [0.021]
Leverage	-0.014 [0.012]	-0.015 [0.013]	0 [0.002]	0 [0.002]	-0.036* [0.020]	-0.036* [0.021]	-0.006 [0.007]	-0.006 [0.007]
Tangibility	-0.016 [0.010]	-0.015 [0.009]	-0.002 [0.001]	-0.002 [0.001]	-0.03 [0.026]	-0.03 [0.027]	-0.015 [0.016]	-0.015 [0.016]
Ind. Concentration	0.012** [0.006]	0.012** [0.006]	0.001 [0.001]	0.001 [0.001]	0.015 [0.011]	0.016 [0.012]	0.017* [0.010]	0.017* [0.010]
BidderPatentRight	-0.002 [0.004]	-0.001 [0.004]	0.001 [0.002]	0.001 [0.002]	0.002 [0.006]	0.001 [0.006]	0.004 [0.007]	0.004 [0.007]
TargetPatentRight	0.004 [0.004]	0.005 [0.004]	0 [0.000]	0 [0.000]	0.013 [0.008]	0.013 [0.009]	-0.009* [0.005]	-0.009* [0.005]
Constant	-0.035** [0.017]	-0.017 [0.017]	-0.012 [0.010]	-0.011 [0.009]	0.018 [0.037]	0.018 [0.039]	0.034 [0.038]	0.031 [0.033]
Adjusted R-sq	0.015	0.019	0.088	0.09	0.061	0.062	0.056	0.059
Observations	1266	1276	474	466	1626	1572	519	513

Panel E1: Panel A: US Bidders acquiring foreign targets for more R&D intense industries

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.026 [0.026]		0.017 [0.040]		.		.	
Post Years	0.016 [0.014]	0.009 [0.007]	0.039 [0.037]	0.021 [0.016]	-0.001 [0.009]	-0.001 [0.009]	-0.032 [0.030]	-0.032 [0.030]
Completed*Post Years	-0.007 [0.013]		-0.018 [0.037]		.		.	
Size	-0.003 [0.003]	-0.003 [0.003]	0.012* [0.007]	0.012* [0.007]	-0.001 [0.004]	-0.001 [0.004]	0.009 [0.009]	0.009 [0.009]
MtoB Ratio	0.003** [0.001]	0.003** [0.001]	0.002 [0.002]	0.002 [0.002]	0.002 [0.002]	0.002 [0.002]	0.008** [0.004]	0.008** [0.004]
Profitability	-0.066*** [0.021]	-0.066*** [0.021]	-0.141* [0.073]	-0.141* [0.073]	-0.138*** [0.023]	-0.138*** [0.023]	-0.394*** [0.060]	-0.394*** [0.060]
Cash Holding	0.117*** [0.033]	0.117*** [0.033]	0.451*** [0.138]	0.451*** [0.138]	0.088* [0.049]	0.088* [0.049]	0.411** [0.175]	0.411** [0.175]
Leverage	-0.024 [0.019]	-0.024 [0.019]	-0.037 [0.052]	-0.037 [0.052]	-0.009 [0.023]	-0.009 [0.023]	0.107 [0.077]	0.107 [0.077]
Tangibility	0.002 [0.032]	0.002 [0.032]	0.056 [0.119]	0.056 [0.118]	0.037 [0.059]	0.037 [0.059]	0.085 [0.169]	0.085 [0.169]
Ind. Concentration	-0.007 [0.027]	-0.007 [0.027]	0.051 [0.051]	0.051 [0.051]	0.008 [0.022]	0.008 [0.022]	0.047 [0.053]	0.047 [0.053]
BidderPatentRight								
TargetPatentRight	0.040*** [0.014]	0.040*** [0.014]	0.059 [0.050]	0.059 [0.050]	0.048** [0.019]	0.048** [0.019]	0.023 [0.035]	0.023 [0.035]
Constant	-0.065 [0.104]	-0.091 [0.099]	-0.614* [0.348]	-0.597* [0.333]	-0.096 [0.104]	-0.096 [0.104]	-0.197 [0.247]	-0.197 [0.247]
Adjusted R-sq	0.347	0.35	0.313	0.316	0.519	0.519	0.532	0.532
Observations	382	380	382	380	330	330	330	330

Panel E2: Non US Bidders acquiring foreign targets including US targets for more R&D intense industries

	-1 vs +1				(-3 to -1) vs (+1 to +3)			
	R&D/Assets		R&D/Sales		R&D/Assets		R&D/Sales	
	All Deals	Completed	All Deals	Completed	All Deals	Completed	All Deals	Completed
Completed	-0.01 [0.023]		-0.025 [0.046]		0.015 [0.015]		0 [0.026]	
Post Years	-0.020* [0.011]	0.010*** [0.003]	-0.091* [0.049]	0.031** [0.013]	-0.002 [0.023]	0.005 [0.006]	-0.082* [0.048]	0.018 [0.018]
Completed*Post Years	0.028** [0.012]		0.121** [0.052]		0.007 [0.024]		0.099** [0.048]	
Size	-0.001 [0.001]	-0.001 [0.001]	-0.001 [0.005]	-0.001 [0.005]	0 [0.002]	0 [0.002]	0.009 [0.006]	0.008 [0.006]
MtoB Ratio	0.001** [0.001]	0.001** [0.001]	0.002 [0.003]	0.002 [0.003]	0.003*** [0.001]	0.003*** [0.001]	0.004 [0.003]	0.004 [0.003]
Profitability	-0.067*** [0.017]	-0.061*** [0.017]	-0.271*** [0.068]	-0.261*** [0.071]	-0.083*** [0.019]	-0.075*** [0.020]	-0.303*** [0.070]	-0.290*** [0.074]
Cash Holding	0.094*** [0.021]	0.097*** [0.022]	0.493*** [0.099]	0.504*** [0.100]	0.108*** [0.030]	0.107*** [0.031]	0.541*** [0.149]	0.552*** [0.153]
Leverage	-0.02 [0.012]	-0.022* [0.012]	0.012 [0.041]	0.007 [0.041]	-0.023 [0.022]	-0.025 [0.022]	-0.018 [0.053]	-0.02 [0.054]
Tangibility	-0.037** [0.016]	-0.038** [0.016]	-0.08 [0.051]	-0.082 [0.053]	-0.031 [0.032]	-0.032 [0.033]	-0.119 [0.075]	-0.116 [0.076]
Ind. Concentration	0.004 [0.009]	0.007 [0.009]	0.044 [0.027]	0.049* [0.027]	-0.008 [0.011]	-0.006 [0.011]	0.012 [0.028]	0.015 [0.029]
BidderPatentRight	0.021*** [0.007]	0.020*** [0.007]	0.034** [0.017]	0.033* [0.017]	0.009 [0.013]	0.007 [0.014]	0.016 [0.023]	0.015 [0.024]
TargetPatentRight	0.024*** [0.006]	0.025*** [0.006]	0.045** [0.019]	0.046** [0.019]	0.034*** [0.012]	0.033*** [0.013]	0.059** [0.023]	0.057** [0.023]
Constant	-0.113*** [0.036]	-0.124*** [0.031]	-0.216** [0.095]	-0.243** [0.095]	-0.182*** [0.054]	-0.157*** [0.054]	-0.376*** [0.120]	-0.363*** [0.123]
Adjusted R-sq	0.272	0.261	0.33	0.322	0.296	0.275	0.364	0.349
Observations	1170	1146	1170	1146	1320	1284	1320	1284