

Cross-Border Mergers & Acquisitions: Synergistic Gains and R&D Capabilities

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Abstract

This study examines the synergy and internalization hypotheses for international acquisitions using a sample of Australian companies with particular focus on the relationship between the synergistic gains and R&D capabilities of both the acquirer and target. We focus on three research questions: (1) Are significant cumulative abnormal returns observed for the Australian acquirers on announcement of cross-border acquisitions? (2) Are significant cumulative abnormal returns observed for R&D intensive Australian acquirers during cross-border acquisitions? and (3) Does R&D intensity explain cross sectional variation in wealth effects on announcement of cross-boarder acquisitions? We find that, overall, significant and positive cumulative abnormal returns are observed for the Australian acquirers in cross-border acquisitions, with the most pronounced effect apparent for R&D intensive Australian acquirers. Consistent with previous studies, target firm shareholders experienced positive and significant abnormal returns. Taken together, these results indicate the existence of synergistic gains, which are shared between acquirer and target shareholders. When we regress the target firms' characteristics on acquirers CARs we find strong and consistent evidence of a positive influence of targets firms R&D intensity on acquirers CARs, suggesting shareholders' wealth increases due to the increasing scale for which the target companies R&D intangible assets are applied. However, when target CARs are regressed on acquirers' financials to explore whether acquirer characteristics can explain target wealth gains, acquirer firms' R&D intensity is found to have a significant and negative effect of target firms' CARs.

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1. Introduction

Mergers and acquisitions (M&As) are an integral part of the corporate restructuring process, and have generated a vast academic literature over the past five decades.¹

A cross-border merger or acquisition occurs when the buyer firm and target firm are in different countries. As noted by Martynova and Renneborg (2008), the fifth takeover wave commencing in the early 1990's and continuing into the 2000's was characterised by increases in the number and magnitude of cross-border M&As, spurred by increased integration of international financial and product markets and companies moving away from the traditional "Greenfield" investments. Cross border M&A activities represented, on average, one-quarter of transactions (both in deal value and number) and accounted for about 80% of foreign direct investments (FDI) over the 1990's (UNCTAD 2000). Cross-border M&As continue to be an important part of more recent corporate restructuring activities.

Synergistic gains are generally put forward as the key motivation behind M&A activities. This has engendered extensive studies into the wealth effects of M&A.² In the case of cross-border M&A, value creation from acquisitions can result from

¹ See Mulherin and Boone (2000) and Martynova and Renneborg (2008) for comprehensive surveys of the international literature. Walter and da Silva Rosa (2004.) provide a recent review Australian research.

² The evidence in the extant literature points to shareholders in target firms benefiting more from the disclosure of a takeover intent compared to acquiring firms. Positive but insignificant bidder returns around announcement dates has been documented for firms acquiring listed targets as well as firms acquiring private and subsidiary targets. The disparity in gains to bidder and target firms' shareholders is more prominent when there are competing bidders. Bradley, Desai, and Kim (1988) and Fedenia and Triantis (1996) find that bidders earn significantly negative returns in multiple bidders contest as compared to single bidder contest.

synergies achieved through the transfer of technology and skills from the acquirer to the target.

However, it must be acknowledged that the analysis of cross-border M&A activity has also been informed by theories of foreign direct investment developed by economists such as Kindleberger (1969) and Caves (1971), who see cross-border M&A being driven by exploitation of imperfections in factor, product and capital markets. In this scenario, gains from taking advantage of these imperfections may, for example, come from reduced costs of production or increased market share, rather than the creation and exploitation of synergies.

Further evidence suggests that the corporate governance quality of target nations affect acquisition decisions but the impact differs across different geographical regions. For example, Rossi and Volpin (2004) report that bidders tend to opt for targets from countries with relatively poorer investor protection, indicating that these transactions are driven by regulatory differences.

Empirical evidence on the effect of cross-border M&As on acquirers and market value is mixed. Doukas and Travlos (1988), Doukas (1995), Kiyamaz (2004) and La Porta, Lopez-de-Silanes, Schelifer and Vishny (2000), among others, suggest that cross-border M&As are value enhancing. Studies supporting the value enhancing view of cross boarder M&As report, on average, an increase of about 7.5 percent in the value of the combined firms relative to their pre-acquisition value (Bradley, Desai and Kim 1988; Eun, Kolodny and Scheraga, 1996; Seth, Song, and Pettit 2000). Francis, Hassan, and Sun (2008) also find positive cross-border wealth effects for US

acquirers, especially those that acquire/merge with targets from segmented financial markets where acquirers experience significantly higher positive abnormal returns relative to those that acquire targets from integrated financial markets. Graham, Martey, and Yawson (2008) find that large firms experiencing slower growth in the domestic market, but possessing more liquid assets, have a higher likelihood of making cross-boarder acquisitions in emerging markets. Yet, Mathur, Rangan, Chhachhi and Sundaram (1994), Moeller and Schlingemann (2005) and Denis, Denis, and Yost (2002) find that cross-border M&As decrease acquirer value. The mixed results provide motivation for further studies into the influence on corporate wealth and the synergy derived from cross-boarder M&As.³

The literature attributes potential synergies from cross-border M&As to multiple sources. Harris and Ravenscraft (1991) assert that gains from cross-border acquisitions result from exchange rate effects. Caves (1982) and Anand and Delios (2002), for example, state that synergies may result from the potential to transfer intangible and knowledge based resources between acquiring and target firms. If this holds, then R&D intensive firms are likely to be active traders of extant assets because a firm's opportunities for synergy increase with the size and scope of internal assets including proprietary technologies created by R&D. However, [Blonigen and Taylor \(2000\)](#) find a negative and significant link in U.S. hi-tech firms R&D and acquisition activities, which they attribute to the fact that internal R&D and acquisition can be direct substitutes in technology-based firm growth. This finding confirms findings in the earlier literature which conclude that M&As decrease the R&D investment of

³ The evidence in related studies on the valuation effect of corporate international diversification has yielded mixed results. Errunza and Senbet (1981, 1984), Kim and Lyn (1986), and Mørck and Yeung (1991), and Bodnar, Tang and Weintrop (1999) report evidence of a significantly positive relation between internationalization and firm value. Other studies find evidence that international operations lead to value destruction (see, for example, Christophe (1997) and Denis, Denis, and Yost. (2002)).

merging firms (Hitt et al., 1991, 1996; Ravenscraft and Scherer, 1987). Nevertheless, Eun, Kolodny and Sheraga (1996) find that foreign acquirers benefit from target firm R&D capabilities. On the industry level, Bertrand and Zuniga (2006) find that M&As contribute to increased R&D spending in some industries. Bertrand (2009) finds that acquisition of French firms by foreign companies boost R&D spending. Ushijima (2009) finds a positive link between acquirer company R&D intensity and Japanese acquisitions, consistent with the notion that R&D increases a firm's opportunity for, and ability to profit from synergies. The study also suggests that the R&D-acquisition association varies across time.

The increasing volume of cross-border M&As, combined with the mixed evidence to date on the role of R&D in cross-border acquisitions, motivates further research . This study therefore contributes to the literature by examining the synergy and internalization hypotheses for international acquisitions using a sample of Australian companies with particular focus on the relationship between the synergistic gains and R&D capabilities of both the acquirer and target. We focus on three research questions:

- (1) Are significant cumulative abnormal returns observed for the Australian acquirers on announcement of cross-border acquisitions?
- (2) Are significant cumulative abnormal returns observed for R&D intensive Australian acquirers during cross-border acquisitions?
- (3) Does R&D intensity explain cross sectional variation in wealth effects on announcement of cross-boarder acquisitions?

We find that, overall, significant and positive cumulative abnormal returns are observed for the Australian acquirers in cross-border acquisitions. When the results are broken down by the degree of R&D intensity of the acquirers, we find the most pronounced effect is for R&D intensive Australian acquirers. Interestingly, while no significant results were obtained for low R&D intensity acquirers, acquirers categorised as “No R&D” recorded a significant positive abnormal return on announcement day.

Consistent with previous studies, target firm shareholders experienced positive and significant abnormal returns, with the largest gain experienced on t-1. In contrast to shareholders in acquirer firms, CARs for target firm shareholders increased by a further 36% in the post announcement period.

When we regress the target firms’ characteristics on acquirers CARs over different windows to understand the potential additional value of the target companies R&D intangible assets on the acquirers’ short term wealth gains, we find strong and consistent evidence of a positive influence of targets firms R&D intensity on acquirers CARs over different windows, suggesting shareholders wealth increases owing to the increasing scale for which the target companies R&D intangible assets are applied. We also regress acquirer CARs on the bidding firms’ financials to investigate the possibility of its own R&D intensity explaining the wealth gains.

The rest of the paper is structured as follows. Section 2 presents the sample construction. The methodology used in this paper is explained in section 3. We discuss our empirical findings in section 4 and section 5 concludes.

II. Sample construction

This study covers cross-boarder M&As involving Australian listed companies that acquired foreign targets between January 1997 and September 2008. We compile a list of successful M&A deals from the Bureau Van Dijk ZEPHYR and Thomson SDC Platinum databases. The deals were checked for accuracy against the Dow Jones Factiva database.⁴ In total, 634 successful deals were identified. Successful acquirers are defined as deals where the acquiring firm holds less than 50% of the target's stock prior to the takeover and achieves more than 50% at the takeover completion date. The target companies in the sample are mostly private. Out of 634 deals, only 68 were listed corporations.

We applied a 261 day return availability filter to both acquiring and target firms, to provide 250 trading days for expected returns estimation as well as an 11 day event window, and removed companies with no price movement (zero logged returns) throughout the 261 day period. This resulted in the removal of 69 deals, including 9 deals for the target companies, leaving 565 deals in our dataset. Table 1 depicts the industrial break-up of the cross-border M&A deals over the study period. The highest (lowest) number of cross boarder deals was in the Materials (Telecommunication Services) sector. In Table 2, a breakdown of target nations involved in Australian cross-border M&As deals are shown. As indicated in the table, 77% of the M&A deals completed were in developed countries.

⁴ There were two announcements that were not include in SDC (or ZEPHYR) but were identified in the FACTIVA search. In both cases the acquiring firm was Toll holdings Ltd. and the two targets were located in Singapore (Sembawang Kimtrans Ltd., announcement date 13/6/2007) and Thailand (Baltrans Holdings, announcement date, 20/12/2007).

-Insert Table 1 about here-

-Insert Table 2 about here-

The primary source of information on R&D expense for both the acquiring and target companies is the DataStream database. There were missing data for some years which we filled by using the R&D expense values reported in the respective companies annual reports. Out of 565 deals, DataStream provided the R&D expense for 101 deals from for the acquiring firms. We accessed R&D expense for acquirer firms for a further 92 deals from the respective company annual reports. In total, there were 372 deals with no accompanying R&D values reported for acquiring companies. Following Morck and Yeung (1992), we define R&D intensity as the ratio of R&D expense to total assets and separate them into two groups for the acquiring companies using the median ratio. The firms above (below) the median value of 0.013752 are classified as high R&D (low R&D), ending up with 97 and 96 deals for the low and high R&D, respectively.

We also collect data on control variables that are known to influence short term wealth gains and cross-border M&As. These include assets in place, market to book, size, and leverage (see for example, Hall 1988; Houston and James 1995; Rau and Vermaelen 1998; Blonigen and Taylor 2000; and Ushijima 2009). As indicated above, only 68 of the target companies in our sample are listed corporations. These 68 are located in 10 countries.⁵ We include country dummies to control for unique country effects. We provide a summary of variables descriptions in the Appendix.

⁵ The countries are China, Canada, Denmark, Germany, Indonesia, New Zealand, Papua New Guinea, Singapore, Thailand and the United Kingdom.

III Methodology

We employ the Brown and Warner (1985) standard event study methodology to examine the impact of cross boarder M&A on corporate wealth and use a 21 day (-10, +10) day event window. In the case of an acquisition announcement occurring on a weekend, the announcement date is the first business day subsequent to the announcement. The daily return of each acquirer (R_{it}) is estimated using the natural logarithm of the stock return index relative.

$$R_{it} = \ln\left(\frac{R_{it}}{R_{it-1}}\right), \quad (1)$$

where R_{it} is the stock return index for the individual stock i at time t . Following Brown and Warner (1985), the *ex-post* abnormal returns (AR_{it}) for each firm is calculated as the difference between the observed return of firm i return at event day t , and the expected return, $E(R_{it})$.

$$AR_{it} = R_{it} - E(R_{it}). \quad (2)$$

The daily expected return, $E(R_{it})$ is calculated using ordinary least squares (OLS), Scholes Williams adjusted beta, and average return. We estimate the market model as follows:

$$R_{it} = \alpha_i + \beta_i(R_{mt}) + e_{it} \quad (3)$$

The market model parameters are estimated using the 250-day estimation period immediately prior to the 21-day event window using S&P/ASX 300 as a proxy for market return. The Scholes Williams adjusted beta is calculated in the following way:

$$\beta_i^{sw} = \frac{\beta_i^{-1} + \beta_i + \beta_i^{+1}}{1 + 2\rho_m} \quad (4)$$

where β_i^{-1} is beta of the stock estimated by regression stock returns on the lagged market returns; β_i is beta of the stock estimated by regression stock returns on the current market returns (or market returns on the same day as the stock returns); β_i^{+1} is beta of the stock estimated by regression stock returns on the market returns on the next trading day; and $2\rho_m$ is first order autocorrelation coefficient for market returns.

Introducing leads and lags corrects for serial bias in OLS estimates due to thinly traded securities. However, the residuals estimated using Scholes-William are quite similar to ones estimated using the OLS method.

The average expected return is estimated by averaging the log returns over 250 trading days as follows.

$$E(R_{it}) = \frac{1}{250} \sum_{t=-261}^{-11} R_{it} \quad (5)$$

The standard t-statistic for the abnormal return is calculated as:

$$t_{AR_{it}} = \frac{\overline{AR_{it}}}{SD(AR_{it})/\sqrt{n}} \quad (6)$$

where $\overline{AR_{it}}$ is the mean abnormal return for the sample and $SD(AR_{it})$ is an estimate of the standard deviation of the abnormal returns.

We cumulate the abnormal return over 21 days to generate the 21-day cumulative abnormal return CAR_{it} . The test statistic for the CAR is estimated as:

$$t_{CAR_{it}} = \frac{CAR_{it}}{SD(CAR_{it})/\sqrt{n}} \quad (7)$$

Following Eun, Kolodny and Scheraga, (1996), we estimate the following cross sectional regression model to investigate the impact of R&D intensity on cumulative abnormal returns subsequent to an M&A:

$$CAR_i = \alpha_0 + \alpha_1 \text{Size} + \alpha_2 \text{R \& D Intensity} + \alpha_3 \text{Assets in Place} + \alpha_4 \text{Leverage} + \alpha_5 \text{Market to book} + \alpha_6 \text{DCash} + \alpha_7 \text{DStock} + \alpha_8 \text{DCountry} + \varepsilon \quad (8)$$

where CAR_i refer to abnormal returns cumulated over 3, 5 and 11 day windows; DCash and DStock are dummy variables representing the method of payment in cash and stock, respectively; and DCountry are dummies representing targets countries.

In estimating equation 8, we initially examine the impact of targets R&D intensity on acquirers CARs. Subsequent to that, we re-estimate the equation to examine the impact of acquirers R&D on targets CARs.

IV Empirical Results

The results of estimating the abnormal return using the Brown and Warner (1985) method are shown in Table 3. We report the results of the abnormal returns for acquirers and targets separately. When we consider all Australian acquirers (Panel A of Table 3), we find significantly positive abnormal returns for days -3 (0.25%), -5 (0.29%), and 0 (1.12%). The pre- announcement significant returns suggest information leakage. In the post announcement window, the results show negative abnormal returns for six of the ten days, perhaps indicating an appearance of market correction. However, only the day +7 abnormal return is statistically significant in this window. We document significant and negative abnormal return of -0.25% on day and +7. We report positive and significant CARs from day -9 to +10 with two exceptions: CARs on day -6 and -10. The CAR initiates an upward movement well before the announcement date on day -5 and gradually decreases in the post-announcement CARs after day +2, suggesting some degree of market correction. Put differently, there is evidence of an announcement effect with 55% of the CAR occurring on $t=0$. This is followed by a non-monotonic decline until $t=10$, with the loss of about 33% of the gain. . Nevertheless, Australia acquirers are, thus, shown to make value enhancing cross-border acquisitions. The evidence supports our hypothesis that significant and positive cumulative abnormal returns are observed for the Australian acquirers in cross-border acquisitions.

We provide additional insight on this value enhancing cross-border by segmenting the acquirers into low, high and no R&D (See Panel B, C, and D of Table 3) and examining the associated abnormal returns. The abnormal returns in the pre-announcement window for the low R&D intensive acquirers only show positive and statistically significant return of 0.89% on day -2. There is also a significant and negative abnormal return of -0.54% on day -9. The abnormal return on the announcement date for low R&D acquirers is not significant. In the post announcement window, we document significant abnormal returns of 0.042% on day +6. The low R&D acquirers CAR initiate an upward movement from day -2, gains momentum on day 0 and eases immediately after the announcement day. The subsample for high R&D acquirers show significant abnormal returns of 1.25% and 1.15%, respectively, in the pre-announcement window on days -8 and -5. We document a 2.16% abnormal return on day 0 for this group as well as a 0.89% abnormal return on day +6. Acquirers with no R&D saw positive and statistically significant abnormal returns of 0.46%, 0.29%, 1.03%, respectively, on days -9, -3, and 0. We note statistically negative abnormal return of -0.24% on day +10. The extent of the market reaction of cross-border deals is more pronounced for high R&D acquirers. The event day abnormal return for high R&D acquirers is 2.16%, compared to 0.23% and 1.03% for low R&D and no R&D acquirers, respectively. The upward movement of the high R&D acquirers CARs gains an upward momentum on day -5, eases on day -1 and gathers pace again on day 0. There is a lot of variance in the CARs after day 0. We document positive and significant 11-day (-10, 0), 12-day (-10, +1), and 16-day (10, +5) CARs. The CARs for the no R&D acquiring firms initiates an upward movement on day -4, eases slightly two days before the announcement date and witnesses a sustained increase after the announcement date before easing on day +3.

Examining the post announcement window, we document significant CARs for the (-10, 0) window up until (-10, +8) window.⁶

-Insert Table 3 about here-

The examinations of the target companies were not segmented because we have only fifty-nine target company observations. We document positive and significant abnormal returns of 1.26% on days -8, and -2, and 6.7% on day -1. The announcement day abnormal return is not statistically significant. In the post announcement window, we document a positive and significant abnormal return of 0.48% on day +6 and -0.24% on day 9. The CAR initiates significant increase on day -2 and maintains the performance for the remaining event window. The large abnormal returns had a significant impact on the CARs in the post announcement window.

Insert Table 4 about here

Results of estimating the cross-sectional regression model in Equation (8) are reported in Table 5. We regress the target firms' characteristics on acquirers CARs over different windows to understand the potential additional value of the target companies R&D intangible assets on the acquirers' short term wealth gains. We hypothesise that when Australian firms expand abroad, shareholders wealth increases owing to the increasing scale for which the target companies R&D intangible assets are applied. We find strong and consistent evidence of a positive influence of targets firms R&D

⁶ We re-estimate our models by classifying high and low R&D acquirers using the mean value. We observe no change in the results.

intensity on acquirers CARs over different windows. The coefficient for R&D intensity is positive and statistically significant. There is also consistent evidence of the negative effect of leverage on acquirer CARs. The assets in place of target companies are also found to exert positive and significant effects on acquirer CARs. The effects of the other control variables, however, are not consistent. Firm size, growth, and mode of payment do not exert any measurable impacts. There are significant country effects in the different windows for Germany, Indonesia, Papua New Guinea, Singapore, and Thailand. However, the effects are not consistent.

Insert Table 5 about here

We re-estimate an adjusted equation (8) by regressing acquirer CARs on the bidding firms' financials to investigate the possibility of its own R&D intensity explaining the wealth gains. Given the large number of targets in the sample being private companies, information asymmetries may lead the shareholders of the acquirer company to rely on acquirer firm characteristics to analyse the synergistic gains from the resulting acquisition. In this model, we group countries into developed and emerging markets, based on IMF economic classification, to reduce the number of the country parameters from 60 to 2. The results of this exercise, presented in Table 6 Panel A, are mixed. Although the coefficient for acquirer company R&D intensity is consistently negative, it is not statistically significant in our estimation models for CAR3 and CAR11. The coefficient for firm size is consistently negative and significant. We further find conflicting effects for the emerging and developed country dummies. Emerging (developed) countries have positive (negative) impact on acquirer CARs. To check whether the sign of the coefficient for R&D intensity is

different for acquirers going into emerging countries as opposed to developed countries, we re-estimate equation 8 and include an interactive variable between emerging country dummy and R&D intensity. This variable was found to be insignificant in all three CARs. However, when we conducted a joint test of the impact of this variable, we find the variable having a significant impact for CAR11.

Insert Table 6 about here

We further regress target CARs on acquirers' financials in a bid to understand the acquirer characteristics that explain target wealth gains. In contrast to the earlier result, acquirer firms' R&D intensity is found to have a significant and negative effect of target firms' CARs. A negative relationship between size of the acquiring firm and wealth gains to the target firm shareholders is also documented. Leverage of the acquiring firm is also found to have a positive measurable influence on target CARs. Growth, mode of payment and fixed assets do not exert any measurable impacts on target CARs. Of the country effects a strong positive effect is observed for China, Denmark and Papua New Guinea, whereas a negative effect is observed for New Zealand and Singapore.

Insert Table 7 about here

V. Conclusion

In this study we examined the synergy and internalization hypotheses for international acquisitions using a sample of Australian companies, with particular focus on the relationship between the synergistic gains and R&D capabilities of both the acquirer and target. We found that, overall, significant and positive cumulative abnormal returns are observed for the Australian acquirers in cross-border acquisitions, with the

most pronounced effect apparent for R&D intensive Australian acquirers. Consistent with previous studies, target firm shareholders experienced positive and significant abnormal returns.

We regressed the target firms' characteristics on acquirers CARs to gain insight into the potential additional value of the target companies R&D intangible assets on the acquirers' short term wealth gains. We found strong and consistent evidence of a positive influence of targets firms R&D intensity on acquirers CARs over different windows, suggesting shareholders' wealth increases owing to the increasing scale for which the target companies R&D intangible assets are applied.

We also categorised countries as developed or emerging and regressed acquirer CARs on the bidding firms' financials to investigate the possibility of its own R&D intensity explaining the wealth gains, but found no consistent results.

Finally, we regressed target CARs on acquirers' financials to explore whether acquirer characteristics can explain target wealth gains. In contrast to the earlier result, acquirer firms' R&D intensity is found to have a significant and negative effect of target firms' CARs.

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Appendix. Variable definition and expected signs

<i>Variables</i>	<i>Definition</i>	<i>Source</i>	<i>Expected Sign / Value</i>
<i>Panel A: Firm Level Variables</i>			
Size	Natural Log of total revenue	Annual Reports, Osiris, Huntley	-/+
Research Intensity	R&D expense / total assets	Annual Reports, Osiris, Datastream	+
Market to Book	(Book value of total liabilities + market value of equity) / total assets	Annual Reports, Osiris, Datastream, Huntley	+
Assets in Place	(Total asstes – intangible assets) / total assets	Annual Reports, Osiris, Datastream, Huntley	+
Leverage	Short term debt / total liabilities	Annual Reports, Osiris, Huntley	-
<i>Panel B: Country Level Variables</i>			
Country Dummy (DCOUNTRY)	Dummy variable for each target country	Zephyr, SDC Platinum	- / +
DEmerging	Dummy variable for emerging countries	International Monetary Fund	
DDeveloped	Dummy variable for developed countries	International Monetary Fund	
<i>Panel C: Payment Method</i>			
Dummy Cash Payment (DCASH)	Dummy representing cash as method of payment	Zephyr, SDC Platinum	- / +
Dummy Stock Payment (DSTOCK)	Dummy representing stock as method of payment	Zephyr, SDC Platinum	- / +

Table 1. Industry grouping and number of cross-border deals – January 1997 to September 2008.

<i>GICS Sector</i>	<i>No of Deals</i>
Health Care	50
Consumer Discretionary	63
Financials	106
Energy	25
Materials	114
Industrials	107
Consumer Staples	17
Information Technology	63
Telecommunication	
Services	9
Utilities	11
Total	565

Table 2. Number of cross-border deals by country and region - January 1997 to September 2008.

	From	To	No. of Deals	% of Deals
Panel A:				
Emerging Markets				
<i>Africa</i>				
Mali	2003	2003	1	0.18
Cameroon	2006	2006	1	0.18
Egypt	2006	2006	1	0.18
Ghana	2005	2006	2	0.35
Mauritius	2003	2007	2	0.35
Mozambique	2002	2002	1	0.18
Namibia	2006	2006	1	0.18
South Africa	2003	2007	14	2.48
Total	2002	2007	23	4.07
<i>Asia</i>				
Bahrain	2006	2006	1	0.18
China	2001	2008	36	6.37
India	2003	2006	4	0.71
Indonesia	2002	2006	3	0.53
Kazakhstan	2006	2007	2	0.35
Lao People's Democratic Republic	2002	2002	1	0.18
Macau	2005	2005	1	0.18
Malaysia	2000	2007	4	0.71
Philippines	2005	2005	1	0.18
Thailand	2003	2006	2	0.35
United Arab Emirates	2006	2007	2	0.35
Uzbekistan	2007	2007	1	0.18
Vietnam	2004	2004	1	0.18
Total	2000	2008	59	10.44
<i>Asia-Pacific</i>				
Tonga	2008	2008	1	0.18
Fiji	1999	1999	1	0.18
Papua New Guinea	2001	2004	2	0.35
Kiribati	2001	2001	1	0.18
Total	1999	2008	5	0.88
<i>Europe</i>				
Estonia	2004	2004	1	0.18
Georgia	2008	2008	1	0.18
Moldova Republic Of	1999	1999	1	0.18
Netherlands	1998	2007	7	1.24
Portugal	2005	2007	2	0.35
Total	1998	2008	15	2.12
<i>North America</i>				
Antigua And Barbuda	2003	2003	1	0.18
Bermuda	2004	2007	3	0.53

Mexico	2007	2007	1	0.18
Total	2003	2007	5	0.88
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<i>South America</i>				
Argentina	2001	2003	3	0.53
Bolivia	2004	2004	1	0.18
Brazil	2004	2007	7	1.24
Chile	2000	2008	11	1.95
Colombia	2005	2005	2	0.35
Peru	2004	2008	2	0.35
Total	2000	2008	23	4.60
Total Emerging Markets	1998	2008	130	23.01
<hr/>				
Panel B:				
Developed Markets				
<hr/>				
<i>Asia</i>				
Singapore	2000	2007	13	2.30
Taiwan	2001	2005	3	0.53
Total	2000	2007	16	2.83
<hr/>				
<i>Asia-Pacific</i>				
New Zealand	1999	2006	99	17.52
Total	1999	2006	99	17.52
<hr/>				
<i>Europe</i>				
Austria	2002	2004	2	0.35
Belgium	1998	2007	5	0.88
Denmark	2005	2005	1	0.18
Finland	2007	2007	1	0.18
France	1999	2007	3	0.53
Germany	1998	2008	21	3.72
Ireland	1997	2007	3	0.53
Italy	1998	2008	7	1.24
Luxembourg	2006	2006	2	0.35
Netherlands Antilles	2006	2006	1	0.18
Norway	1997	2008	2	0.35
Spain	1998	2007	2	0.35
Sweden	2003	2006	5	0.88
Switzerland	2000	2008	7	1.24
United Kingdom	1997	2008	94	16.46
Total	1997	2008	156	27.61
<hr/>				
<i>North America</i>				
Canada	1999	2008	29	5.13
United States	1997	2008	135	23.72
Total	1997	2008	164	29.03
Total Developed Markets	1997	2008	435	76.99

Table 3. Total gains to successful acquirers in Australian cross-border acquisitions from day -10 to day +10

PANEL A: ALL ACQUIRERS (N = 565)							
<i>Day</i>	<i>AAR</i>	<i>VAAR</i>	<i>T-Stat (AAR)</i>	<i>% -ive</i>	<i>CAAR</i>	<i>VCAAR</i>	<i>T-Stat (CAAR)</i>
-10	0.0029	0.0020	1.5282	47.61%	0.0029	0.0020	1.5282
-9	0.0015	0.0013	1.0055	49.20%	0.0044	0.0033	1.8217
-8	0.0016	0.0013	1.0712	50.44%	0.0060	0.0046	2.1129
-7	-0.0007	0.0011	-0.4997	52.74%	0.0053	0.0057	1.6832
-6	-0.0012	0.0010	-0.8648	51.86%	0.0042	0.0067	1.2068
-5	0.0029	0.0011	2.0866	49.03%	0.0071	0.0078	1.8967
-4	0.0006	0.0008	0.5217	50.27%	0.0077	0.0086	1.9657
-3	0.0025	0.0011	1.7772	52.74%	0.0102	0.0097	2.4548
-2	0.0000	0.0018	-0.0258	49.91%	0.0101	0.0115	2.2461
-1	-0.0009	0.0014	-0.5855	54.69%	0.0092	0.0129	1.9332
0	0.0112	0.0033	4.6477	41.77%	0.0204	0.0162	3.8214
1	0.0002	0.0025	0.0914	49.73%	0.0206	0.0187	3.5897
2	0.0009	0.0018	0.5194	48.32%	0.0216	0.0205	3.5825
3	-0.0005	0.0010	-0.3654	50.44%	0.0211	0.0215	3.4151
4	-0.0013	0.0012	-0.8799	54.69%	0.0198	0.0227	3.1198
5	0.0001	0.0013	0.0821	53.27%	0.0199	0.0240	3.0537
6	-0.0015	0.0011	-1.0424	52.92%	0.0184	0.0251	2.7657
7	-0.0025	0.0009	-1.9930	55.75%	0.0159	0.0261	2.3408
8	0.0014	0.0022	0.7383	52.74%	0.0173	0.0282	2.4537
9	-0.0023	0.0011	-1.6414	55.75%	0.0150	0.0293	2.0859
10	-0.0013	0.0007	-1.1385	52.92%	0.0137	0.0301	1.8818
PANEL B: LOW R&D ACQUIRERS (N = 96)							
<i>Day</i>	<i>AAR</i>	<i>VAAR</i>	<i>T-Stat (AAR)</i>	<i>% -ive</i>	<i>CAAR</i>	<i>VCAAR</i>	<i>T-Stat (CAAR)</i>
-10	0.0026	0.0006	0.9995	50.00%	0.0026	0.0006	0.9995
-9	-0.0054	0.0008	-1.8357	57.29%	-0.0028	0.0015	-0.7222
-8	-0.0025	0.0005	-1.0510	52.08%	-0.0053	0.0020	-1.1631
-7	0.0014	0.0004	0.6708	53.13%	-0.0039	0.0024	-0.7735
-6	0.0028	0.0011	0.8123	55.21%	-0.0011	0.0036	-0.1783
-5	-0.0014	0.0006	-0.5459	54.17%	-0.0025	0.0042	-0.3768
-4	-0.0006	0.0004	-0.2721	53.13%	-0.0031	0.0046	-0.4419
-3	-0.0016	0.0004	-0.7675	58.33%	-0.0047	0.0050	-0.6418
-2	0.0089	0.0018	2.0749	47.92%	0.0043	0.0068	0.5066
-1	0.0026	0.0011	0.7842	48.96%	0.0069	0.0079	0.7603
0	0.0023	0.0008	0.8020	43.75%	0.0092	0.0087	0.9698
1	-0.0034	0.0024	-0.6837	45.83%	0.0058	0.0111	0.5442
2	0.0014	0.0006	0.5524	47.92%	0.0073	0.0117	0.6579
3	0.0006	0.0008	0.2206	51.04%	0.0079	0.0125	0.6925
4	-0.0041	0.0009	-1.3114	58.33%	0.0038	0.0135	0.3226
5	-0.0020	0.0006	-0.8150	55.21%	0.0018	0.0140	0.1522
6	0.0042	0.0005	1.8378	45.83%	0.0061	0.0146	0.4942
7	-0.0032	0.0006	-1.2634	55.21%	0.0029	0.0152	0.2276
8	0.0032	0.0010	1.0174	43.75%	0.0061	0.0162	0.4700
9	0.0005	0.0005	0.2149	55.21%	0.0066	0.0166	0.4993
10	0.0003	0.0008	0.1034	45.83%	0.0069	0.0174	0.5098

PANEL C: HIGH R&D ACQUIRERS (N = 97)

<i>Day</i>	<i>AAR</i>	<i>VAAR</i>	<i>T-Stat (AAR)</i>	<i>% -ive</i>	<i>CAAR</i>	<i>VCAAR</i>	<i>T-Stat (CAAR)</i>
-10	0.0145	0.0089	1.5168	37.11%	0.0145	0.0089	1.5168
-9	-0.0027	0.0033	-0.4669	47.42%	0.0118	0.0122	1.0528
-8	0.0125	0.0042	1.9105	44.33%	0.0243	0.0163	1.8745
-7	-0.0052	0.0020	-1.1284	62.89%	0.0192	0.0184	1.3941
-6	-0.0021	0.0018	-0.4813	48.45%	0.0171	0.0202	1.1850
-5	0.0115	0.0020	2.5437	37.11%	0.0286	0.0222	1.8905
-4	0.0018	0.0016	0.4410	46.39%	0.0304	0.0237	1.9402
-3	0.0054	0.0038	0.8679	52.58%	0.0358	0.0275	2.1236
-2	-0.0057	0.0024	-1.1570	43.30%	0.0300	0.0299	1.7116
-1	-0.0046	0.0024	-0.9170	55.67%	0.0254	0.0323	1.3938
0	0.0216	0.0082	2.3610	44.33%	0.0471	0.0405	2.3051
1	-0.0036	0.0049	-0.5141	53.61%	0.0435	0.0454	2.0096
2	-0.0089	0.0031	-1.5827	57.73%	0.0345	0.0484	1.5461
3	-0.0009	0.0015	-0.2159	49.48%	0.0337	0.0499	1.4851
4	0.0050	0.0018	1.1579	45.36%	0.0387	0.0517	1.6754
5	0.0092	0.0038	1.4744	53.61%	0.0479	0.0555	2.0019
6	-0.0081	0.0017	-1.9425	57.73%	0.0398	0.0572	1.6385
7	-0.0051	0.0017	-1.2190	55.67%	0.0347	0.0589	1.4085
8	0.0052	0.0025	1.0175	52.58%	0.0399	0.0614	1.5859
9	-0.0056	0.0014	-1.4875	58.76%	0.0343	0.0628	1.3469
10	0.0004	0.0012	0.1216	49.48%	0.0347	0.0640	1.3509

ACQUIRERS WITH NO R&D (N = 372)

<i>Day</i>	<i>AAR</i>	<i>VAAR</i>	<i>T-Stat (AAR)</i>	<i>% -ive</i>	<i>CAAR</i>	<i>VCAAR</i>	<i>T-Stat (CAAR)</i>
-10	-0.0001	0.0006	-0.0531	49.73%	-0.0001	0.0006	-0.0531
-9	0.0046	0.0009	2.9559	47.31%	0.0045	0.0015	2.2537
-8	-0.0005	0.0006	-0.3929	52.15%	0.0040	0.0021	1.6722
-7	-0.0003	0.0010	-0.1615	50.00%	0.0037	0.0032	1.2844
-6	-0.0018	0.0008	-1.1957	51.61%	0.0020	0.0040	0.6021
-5	0.0015	0.0009	0.9538	51.34%	0.0035	0.0049	0.9592
-4	0.0008	0.0007	0.5852	50.00%	0.0043	0.0056	1.1024
-3	0.0029	0.0006	2.1748	51.34%	0.0071	0.0062	1.7433
-2	-0.0007	0.0016	-0.3377	51.88%	0.0064	0.0079	1.3990
-1	-0.0010	0.0012	-0.5782	56.45%	0.0054	0.0090	1.0979
0	0.0103	0.0025	3.9563	40.59%	0.0157	0.0116	2.8242
1	0.0021	0.0019	0.9054	49.73%	0.0178	0.0135	2.9569
2	0.0033	0.0017	1.5082	45.97%	0.0211	0.0152	3.2925
3	-0.0007	0.0010	-0.4496	50.54%	0.0203	0.0162	3.0817
4	-0.0022	0.0011	-1.2611	55.91%	0.0182	0.0173	2.6621
5	-0.0017	0.0008	-1.1660	52.69%	0.0164	0.0181	2.3537
6	-0.0012	0.0011	-0.7155	53.76%	0.0152	0.0192	2.1131
7	-0.0018	0.0008	-1.2125	56.18%	0.0134	0.0200	1.8269
8	-0.0001	0.0024	-0.0288	55.38%	0.0133	0.0224	1.7180
9	-0.0022	0.0012	-1.1884	55.11%	0.0112	0.0236	1.4034
10	-0.0024	0.0006	-1.8447	55.91%	0.0088	0.0242	1.0928

Table 4. Total gains to target companies in Australian cross-border acquisitions from day -10 to day +10 following successful bids. (N = 59)

<i>Day</i>	<i>AAR</i>	<i>VAAR</i>	<i>T-Stat (AAR)</i>	<i>% -ive</i>	<i>CAAR</i>	<i>VCAAR</i>	<i>T-Stat (CAAR)</i>
-10	-0.0034	0.0080	-0.2884	52.54%	-0.0034	0.0080	-0.2884
-9	0.0000	0.0018	-0.0041	45.76%	-0.0034	0.0098	-0.2626
-8	0.0126	0.0021	2.0860	40.68%	0.0092	0.0119	0.6448
-7	0.0048	0.0011	1.1188	42.37%	0.0140	0.0130	0.9409
-6	0.0032	0.0007	0.8889	54.24%	0.0172	0.0138	1.1221
-5	0.0043	0.0019	0.7566	44.07%	0.0214	0.0157	1.3143
-4	0.0004	0.0009	0.1134	38.98%	0.0218	0.0166	1.3044
-3	0.0034	0.0010	0.8279	49.15%	0.0252	0.0175	1.4625
-2	0.0126	0.0026	1.9067	42.37%	0.0378	0.0201	2.0469
-1	0.0671	0.0122	4.6603	25.42%	0.1049	0.0323	4.4806
0	0.0160	0.0155	0.9888	42.37%	0.1209	0.0478	4.2460
1	0.0110	0.0044	1.2739	49.15%	0.1319	0.0522	4.4330
2	-0.0039	0.0010	-0.9661	55.93%	0.1280	0.0532	4.2636
3	0.0012	0.0004	0.4393	35.59%	0.1292	0.0536	4.2859
4	0.0025	0.0002	1.4618	38.98%	0.1317	0.0538	4.3608
5	-0.0081	0.0034	-1.0740	49.15%	0.1235	0.0572	3.9682
6	0.0048	0.0004	1.9299	49.15%	0.1283	0.0575	4.1091
7	0.0021	0.0019	0.3736	44.07%	0.1304	0.0595	4.1093
8	0.0056	0.0013	1.1773	44.07%	0.1360	0.0608	4.2383
9	-0.0024	0.0001	-1.7637	55.93%	0.1336	0.0609	4.1592
10	0.0089	0.0036	1.1344	57.63%	0.1425	0.0645	4.3097

Table 5. Regression results: Acquirer CARs using target firm characteristic as control variables

Variables	CAR3				CAR5				CAR11			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	-0.124	-0.057	0.135	0.103	-0.117	-0.049	0.173	0.153	-0.053	-0.028	0.298	0.265
SIZE	0.007	0.005	-0.006	-0.004	0.006	0.004	-0.008	-0.007	0.003	0.003	-0.015	-0.013
R&D Intensity	2.805**	3.373**	3.764**	3.975**	3.589**	4.106**	4.557**	4.688**	3.955**	5.293**	5.956**	6.170**
Leverage		-0.305**	-0.306**	-0.347**		-0.302**	-0.303**	-0.329**		-0.464**	-0.465**	-0.508**
Assets in Place			0.000**	0.000**			0.000**	0.000**			0.000**	0.000**
Growth				0.005*				0.003				0.005
DSTOCK		-0.020	-0.023	-0.027		-0.012	-0.015	-0.017		0.029	0.025	0.021
DCASH		-0.031	-0.035	-0.037		-0.011	-0.016	-0.017*		-0.021	-0.028	-0.030
CHINA	-0.015	0.025	0.052*	0.037	-0.015	0.018	0.049	0.040	-0.031	0.034	0.079**	0.064*
CANADA	0.059	0.037	-0.005	-0.003	0.047	0.020	-0.028	-0.027	0.014	-0.003	-0.074	-0.072
DENMARK	-0.004	-0.008	0.003	-0.002	-0.004	-0.015	-0.003	-0.005	0.007	0.005	0.023	0.019
GERMANY	0.027	0.032	0.028*	0.033	0.074**	0.070**	0.066**	0.068**	0.051*	0.069**	0.062*	0.067*
INDONESIA	0.011	0.002	-0.020	-0.014	-0.008	-0.028	-0.054*	-0.050	-0.058	-0.058	-0.096*	-0.090*
NEW_ZEALAND	-0.001	0.002	0.012	0.009	-0.015	-0.010	0.001	-0.001	-0.012	-0.005	0.012	0.008
PAPUA_N_GUINEA	-0.005	-0.040	-0.028	-0.029	0.017	-0.005	0.009	0.008	0.069**	0.046	0.065	0.065
SINGAPORE	0.046	0.109**	0.125**	0.132**	-0.061*	-0.005	0.013	0.017	-0.067**	0.034	0.061	0.068
THAILAND	-0.048**	-0.085**	-0.083**	-0.083**	-0.095**	-0.121**	-0.119**	-0.118**	-0.006	-0.029	-0.026	-0.025
UNITED_KINGDOM	-0.039	-0.038	-0.046	-0.048	-0.044	-0.044	-0.053	-0.054	-0.056	-0.048	-0.062	-0.064
R-squared	0.156	0.287	0.372	0.385	0.191	0.285	0.372	0.376	0.126	0.247	0.360	0.367
Adjusted R-squared	-0.111	-0.018	0.076	0.068	-0.065	-0.022	0.077	0.054	-0.150	-0.075	0.059	0.040
F-statistic	0.585	0.941	1.257	1.213	0.747	0.929	1.259	1.169	0.456	0.767	1.198	1.124
Prob(F-statistic)	0.840	0.532	0.279	0.308	0.698	0.543	0.278	0.339	0.928	0.703	0.318	0.374

Table 6. Regression results: Acquirer CARs using acquirer firm characteristic as control variables

Panel A Variable	CAR3				CAR5				CAR11			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	0.087	0.092	0.091	0.081	0.105**	0.121	0.127	0.117	0.114	0.133	0.133	0.137
SIZE	-0.003**	-0.004**	-0.004**	-0.003**	-0.004**	-0.005**	-0.005**	-0.005**	-0.005**	-0.006**	-0.006**	-0.006**
R&D Intensity	-0.115	-0.110	-0.111	-0.108	-0.182	-0.174**	-0.171**	-0.168**	-0.051	-0.039	-0.040	-0.042
Leverage		0.020	0.019	0.019		-0.021	-0.022	-0.022		0.037	0.036	0.036
Assets in Place			0.001	0.000			-0.008	-0.008			0.002	0.002
Growth				0.002				0.002				-0.001
DSTOCK		-0.011	-0.011	-0.012		-0.019	-0.019	-0.020		-0.035*	-0.035	-0.035*
DCASH		0.003	0.003	0.003		0.000	0.000	0.001		0.011	0.012	0.012
DEMERGING	0.002	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.033**	0.030*	0.029*	0.029*
DDEVELOPED	-0.011*	-0.012*	-0.012*	-0.011*	-0.011	-0.012	-0.013*	-0.012	-0.005	-0.008	-0.008	-0.009
DEMERGING * R&D Intensity				F= 0.106				F=0.002				F=5.119**
R-squared	0.037	0.040	0.040	0.042	0.050	0.055	0.055	0.057	0.046	0.060	0.060	0.060
Adjusted R-squared	0.030	0.027	0.025	0.026	0.043	0.042	0.041	0.041	0.039	0.047	0.045	0.043
F-statistic	5.198	3.126	2.658	2.533	6.996	4.344	3.785	3.498	6.510	4.727	4.094	3.646
Prob(F-statistic)	0.000	0.003	0.007	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 7. Regression results: Target CARs using acquirer firm characteristic as control variables

Variables	CAR3 (target)				CAR5 (target)				CAR11 (target)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	0.852	0.927	0.984	0.958	0.782	0.879	0.971	0.957	0.914	1.022	1.106	1.018
SIZE	-0.033*	-0.039**	-0.037**	-0.037**	-0.030	-0.036*	-0.034**	-0.034**	-0.036	-0.042**	-0.040**	-0.038**
R&D Intensity	-0.810*	-0.991**	-0.971**	-0.963**	-0.748*	-0.928**	-0.896**	-0.892**	-0.708	-0.897**	-0.868**	-0.842**
Leverage		0.716**	0.693**	0.692**		0.661*	0.624*	0.624*		0.727**	0.694**	0.691**
Assets in Place			-0.116	-0.123			-0.186	-0.190			-0.171	-0.195
Growth				0.008				0.004				0.026
DSTOCK		-0.056	-0.053	-0.045		-0.079	-0.074	-0.070		-0.082	-0.078	-0.053
DCASH		0.014	0.018	0.025		0.029	0.035	0.039		0.003	0.008	0.033
CHINA	0.225**	-0.117	-0.130	-0.131	0.202**	-0.126	-0.147	-0.147	0.263**	-0.084	-0.104	-0.105
CANADA	-0.080	-0.107	-0.076	-0.078	-0.114	-0.134	-0.083	-0.084	-0.180	-0.207**	-0.160	-0.167*
DENMARK	0.076**	0.098**	0.127**	0.132**	0.111**	0.117**	0.163**	0.166**	0.108	0.129**	0.172**	0.187**
GERMANY	-0.102	-0.077	-0.130	-0.139	0.007	0.017	-0.067	-0.072	0.008	0.032	-0.045	-0.077
INDONESIA	-0.047	-0.030	-0.007	-0.005	-0.067	-0.062	-0.024	-0.023	-0.050	-0.031	0.004	0.010
NEW_ZEALAND	-0.101	-0.123**	-0.117*	-0.114*	-0.108	-0.129*	-0.121*	-0.119*	-0.097	-0.121*	-0.113*	-0.103
PAPUA_N_GUINEA	0.170	0.197**	0.227**	0.238**	0.152	0.179**	0.228**	0.234**	0.114	0.128*	0.173**	0.209**
SINGAPORE	-0.077	-0.419**	-0.432**	-0.433**	-0.097	-0.426**	-0.447**	-0.447**	-0.118**	-0.466**	-0.485**	-0.486**
THAILAND	-0.060	-0.016	0.015	0.023	0.148	0.192**	0.241**	0.246**	0.232**	0.265**	0.310**	0.340**
UNITED_KINGDOM	-0.068	-0.071	-0.053	-0.051	-0.070	-0.078	-0.050	-0.049	-0.068	-0.073	-0.047	-0.042
R-squared	0.359	0.582	0.601	0.602	0.339	0.549	0.593	0.593	0.363	0.566	0.601	0.613
Adjusted R-squared	0.176	0.421	0.433	0.419	0.150	0.375	0.422	0.407	0.181	0.399	0.432	0.435
F-statistic	1.963	3.618	3.573	3.292	1.797	3.159	3.462	3.177	1.998	3.390	3.570	3.443
Prob(F-statistic)	0.054	0.001	0.001	0.001	0.080	0.002	0.001	0.002	0.049	0.001	0.001	0.001

