WEALTH EFFECTS OF BUSINESS TAKEOVER ANNOUNCEMENTS: THE CASE OF AUSTRALIAN ACQUIRERS' SHAREHOLDERS

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Abstract

Australia has accounted for over 51 percent of mergers and acquisitions in the Asia Pacific region (excluding Japan) during 2004-2006. This paper investigates the short-horizon and long-horizon wealth effects experienced by shareholders of Australian acquirers following these domestic and cross-border business takeover announcements. The sample consists of 197 announcements. Results for domestic acquisitions suggest that acquirers' shareholders endure abnormal returns in the range of -1.07% and -1.86% per day in the short-horizon. The long-horizon wealth effects, however, were found to be inconclusive. Results for cross-border acquisitions show that acquirers' shareholders endure abnormal returns in the range of 1.02% and 1.26% per day in the short-horizon. This positive wealth effect, however, dissipates in the long-horizon.

Keywords: business takeovers; domestic and cross-border acquisitions; Asia Pacific; Australia; calendar time methodology

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1. Introduction

The business takeover markets around the world have undergone unprecedented growth over the years. Factors such as the liberalisation of trade and capital movement, rapid technological change, advances in information technology, regulatory reform in utility sectors and government privatizations have helped fuel the acceleration of these takeover activities (OECD, 2001).

Within this global trend, the Australian acquirers have played an increasingly important role. According to SDC Platinum (2008), Australia has accounted for over 51% of announced mergers and acquisitions (M&As) in the Asia Pacific region (excluding Japan) during 2004-2006. Also, the value of domestic M&As (DMAs) has increased four times and the value of cross-border M&As (CBMAs) has increased over twenty times during 1993 and 2006. Despite these developments, as far as it could be ascertained, no study has considered the wealth effects endured by shareholders of Australian acquirers following business takeover announcements. This study is an attempt to fill this research gap.

Specifically, we contribute to the literature by estimating both short-horizon and long-horizon wealth effects experienced by Australian acquirers (involving both DMAs and CBMAs) utilising a unique data set that has not been subject to a similar study.[1] Our sample comprises of 142 DMA announcements and 55 CBMA announcements made between January 1996 and December 2004. The short-horizon performance of acquirers is estimated over a three-day time window using the standard market model, which is the methodology adopted by large majority of studies. Our examination of long-horizon wealth effects, however, is conducted using the calendar-time

methodology which is robust to most criticisms of previous long-horizon studies.

The rest of the paper is organised as follows. The next section reviews the existing M&A wealth effects literature and states the hypotheses tested in the paper. The research design and the empirical models are in the third section, with the discussion of findings in the subsequent section. The last section concludes the paper.

2. Literature review and hypotheses

2.1 Short-horizon wealth effects endured by acquirers in DMAs

Typically, acquirers engage in DMAs to take advantage of any synergistic benefits, cost savings or increased market share that may exist between the target and acquirer (Datta *et al*., 1992). To advocates of the agency and management hubris theories, however, DMAs may in fact create negative wealth effects for the acquirer. For example, Shleifer and Vishny (1989) argue that some managers may encourage M&As to entrench themselves in the firm by investing in areas that make their specific skills indispensable, even if such projects do not add value. By doing so management may be able to enhance their remuneration and diminish the likelihood of being replaced. These ulterior motives may lead management to overestimate synergistic gains arising from a takeover, causing the company to overpay for the targets assets (Hayward and Hambrick, 1997). High agency costs in terms of monitoring and bonding operations may also have an adverse effect on the acquirer's market value, if issues concerning the loss of control of the consolidated entity are perceived important by the market (Ravenscraft and Scherer, 1987).

The empirical studies investigating the short-horizon wealth effects to acquirers' shareholders in DMAs have produced contradictory evidence. For example, Eckbo and Thorburn (2000) find that Canadian domestic acquirers realised significant positive abnormal stock returns of 3.65%. Kang (1993) echoes a similar result for a sample of Japanese acquirers over 1975-1988. In contrast, Gregory (1997) shows significant negative abnormal returns using the same methodology and short-horizon event window as Eckbo and Thorburn (2000). Kennedy and Limmack (1996) and Aw and Chatterjee (2004) also report results consistent with Gregory (1997) for UK acquirers. These contradictory evidence and inconsistencies warrant further investigations into the short-horizon wealth effects of DMAs endured by acquirers' shareholders.[2]

2.2 Short-horizon wealth effects endured by acquirers in CBMAs

The CBMAs, according to theorists of foreign direct investment, should create value for acquirers for three reasons: (1) through gaining access to the expertise and know-how of international markets (according to the internationalization theory of Buckley and Casson (2003)), (2) through internalization of synergies based on intangible and information based assets such as economies of scale and scope that would otherwise be lost because of various market failures (Conn *et al.,* 2005), and (3) through reduced risk of business failure due to greater income diversification (French and Poterba, 1991). On the contrary, for agency and management hubris theorists, CBMAs in fact destroy value for the bidder to the extent these transactions are mere avenues for management to expand their empire overseas at the expense of shareholders (Jensen and Meckling, 1976).

The empirical studies investigating the short-horizon wealth effects to acquirers' shareholders in CBMAs have predominantly been on developed countries such as the U.S., the U.K. and Japan.[3] Their findings, however, remain contradictory. For example, a well-known study by Doukas and Travlos (1988, p.1168) involving 301 foreign acquisitions by US companies reported insignificant returns to the acquirer's shareholders. Using a similar methodology, Cakici *et al*., (1996, p.317), however, found that foreign acquirers of US companies experienced positive and significant abnormal returns of around 2%. Kang (1993, p.355) examined 102 Japanese acquisitions of U.S. firms between 1975 and 1988 and reports that the acquirers' shareholders experienced significant positive abnormal returns of 0.66%. Thus, the existing literature provides conflicting insights. Their findings tend to depend on sample composition, sample period and methods employed.

2.3 Long-horizon wealth effects endured by acquirers in DMAs and CBMAs

The short-horizon wealth effect studies discussed above (involving both DMAs and CBMAs) assume perfect capital markets and contend that the short-horizon stock price reaction to bid announcements was sufficient to capture the full information effect of the acquisition. The prior studies approximating long-horizon abnormal returns (over one to three years following merger announcements), however, question the interpretation of traditional short-horizon event study results as a standalone analysis and advocate an additional examination of long-horizon shareholder wealth effects (Loughran and Vijh, 1997).

Due to methodological variations in calculating long-horizon shareholder wealth effects, prior studies have produced nontrivial differences in abnormal return estimates. For example, Agrawal *et al*., (1992, p.1611) observe 937 mergers in the U.S. over 1955-1984 and report statistically significant five-year post-acquisition abnormal returns of -10% to the acquirer. Loughran and Vijh (1997, p.1773) utilise the buy-and-hold abnormal returns (BHAR) methodology to estimate five-year abnormal returns for 947 US acquisitions and find that acquirers' shareholders incur significant abnormal returns of -15.9%. Using a similar approach, Rau and Vermaelen (1998, p.235) report that acquirers underperformed in the long-run with significant abnormal returns of -4.04%. Two recent studies by Gregory and McCorriston (2005) and Black et al. (2007) employ an improved BHAR approach to estimate long-horizon returns. The former (p.111) reports that acquirers' three-year negative abnormal returns were not statistically different from zero. In contrast, the latter (p.152), finds significant post-acquisition three-year abnormal returns of -13.2%.

Fama (1998) regards the calendar-time abnormal returns (hereafter 'CTAR') approach, which is less prone to model misspecification, as a more robust methodology than the BHAR. Using CTAR, Mitchell and Stafford (2000, p. 314) examine 2,193 M&As in the U.S. between 1961 and 1993 and report significant three-year abnormal returns of -7.2%. Similarly, evidence from the Canadian market provided by Andre *et al*., (2004, p.35) indicate that acquirers incur an abnormal return of -18.8% over a three-year period after the announcements. Overall, there seems to be a broad consistency in the results obtained using the CTAR approach.

Despite a recent surge in the related empirical literature, so far no study has considered the wealth effects endured by shareholders of Australian acquirers following business takeover announcements. Given this lack of evidence, this study tests the following four hypotheses for a sample of M&As involving Australian acquirers (note, the four hypotheses are stated as null hypotheses due to the contradictory nature of existing evidence):

ii (H_1): The acquiring firm will endure zero short-horizon cumulative abnormal returns following DMA announcements.

iii (H_2): The acquiring firm will endure zero short-horizon cumulative abnormal returns following CBMA announcements.

iv (H_3): The acquiring firm will endure zero long-horizon abnormal returns following DMA announcements.

v (H_4): The acquiring firm will endure zero long-horizon abnormal returns following CBMA announcements.

3. Research design

3.1 Sample and sampling procedure

Our sample consists of 197 M&A announcements made by Australian acquirers between January 1996 and December 2004. This timeframe enables us to investigate 3-year post-announcement returns beginning 1993 and ending in 2007. The primary data sources are the SDC Platinum (2008) and AGSM (2008) data bases.

We define a merger or acquisition as occurring when the acquirer owns less than 50% of the target's voting shares before the takeover announcement and increases its ownership to at least 50% of voting shares after the announcement. In addition, to be included in the sample, a particular M&A transaction should satisfy the following selection criteria:

i) acquirer is an Australian company listed on the Australian Stock Exchange (ASX) and daily and monthly stock prices, monthly market capitalisation, and financial and accounting data for the acquirer are available in the AGSM data base,

ii) acquisition involved a completed domestic or cross-border M&A transaction and transaction values were disclosed,

iii) transaction value is greater than US$20 million (following, Bhagat *et al*., 1990), and

iv) the acquirer was not involved in any other M&As in the previous three years. This is because multiple acquisitions within the same time window studied raise the problem of dependent observations due to overlap and contamination of the sample (Andre *et al*., 2004).

Table 1. Sample descriptive statistics

Panel A: Domestic Acquisitions ($ millions)							
Year	Mean	Median	St. Dev.	Minimum	Maximum	Sample (nos.)	%
1996	93.8	120.9	60.9	20.1	168.6	7	5%
1997	201.7	84.1	323.4	23.2	1190.7	12	8%
1998	149.9	78.8	180.2	27.1	629.9	12	8%
1999	118.3	66.2	125.8	21.5	513.9	19	13%
2000	102.5	47.9	123.3	22.3	514.4	17	12%
2001	92.5	40.5	89.1	22.7	313.2	12	8%
2002	57.5	53.9	32.4	21.5	147.7	19	13%
2003	451.4	57.1	1283.2	22.2	5906.2	23	16%
2004	164.1	58.8	285.7	21.3	1218.1	21	15%
Total	175.3	59.8	558.2	20.1	5906.2	142	100%

Panel B: Cross-border Acquisitions ($ millions)							
Year	Mean	Median	St. Dev.	Minimum	Maximum	Sample (nos.)	%
1996	239.9	140.1	204.5	54.9	525.0	3	5%
1997	71.1	67.1	37.8	24.9	129.9	10	18%
1998	98.8	81.6	60.3	43.3	188.8	4	7%
1999	244.8	41.8	363.9	20.6	874.8	4	7%
2000	190.5	84.5	161.5	36.7	403.9	5	9%
2001	26.6	25.0	2.9	24.1	30.6	3	5%
2002	97.4	36.9	98.5	24.6	282.6	5	9%
2003	129.8	43.0	171.9	22.0	591.9	9	16%
2004	1586.2	104.9	3372.3	23.6	11510.9	12	22%
Total	445.9	57.1	1693.5	20.6	11510.9	55	100%

The selected descriptive statistics of the sample is presented in Table 1. The mean transaction value varies from US$175.3 million for the DMA sample (in Panel A) to US$445.9 million for the CBMA sample (in Panel B). This suggests that, on average, cross-border targets are over twice as large in terms of value as domestic targets. The median transaction values, however, show greater consistency with US$59.8 million and US$57.1 million values for the DMA and CBMA samples, respectively. This inconsistency in the two measures of central tendency is caused by the presence of 'large' value CBMA transactions in the sample. Accordingly, the CBMA sample exhibits greater dispersion in transaction value with a standard deviation of US$1693.5 million compared to only US$558.2 million for the DMA transactions. It is also noted that 44% of DMAs and 47% of CBMAs have occurred during 2002-2004 possibly due to the observed economic boom during this period.

3.2 Computing short-horizon abnormal returns

We estimate the short-horizon abnormal returns using the standard market model. This approach produces a smaller variance for abnormal returns leading to more powerful statistical tests than alternative constant mean return model, capital asset pricing model and the Fama-French three factor model (MacKinlay, 1997). Furthermore, this methodology has been used more extensively in previous literature than any other alternative and so ensures comparability of our results (for example see, Franks and Harris (1989); Cakici and Hessel (1996); and Eckbo and Thorburn (2000)).

The short-horizon abnormal returns are approximated by calculating the daily average abnormal returns (AARs), which are then used to determine cumulative average abnormal returns (CAARs). The time window over which AARs and CAARs have been estimated differ significantly amongst similar studies with little consensus among researchers. For example, time windows vary from those beginning one day before the bid announcement date and ending one day after bid

announcement date (for example, Goergen and Renneboog, 2004) to ones often spanning weeks (for example, Danbolt, 2004). Given that share prices are quick to adjust following M&A announcements, the most common definition of short-horizon used in literature is three days: one-day before bid announcement to one-day after the bid announcement. Thus, this definition of short-horizon time window, which we denote as (-1, +1), is adopted in the present study to ensure greater comparability with prior studies. As robustness measures, however, we also compute abnormal returns over two other time windows: five days prior to bid announcement to five days after bid announcement (-5, +5) and ten days prior to bid announcement to ten days after bid announcement (-10, +10).

We calculate the daily returns for each acquirer in our sample over the time window (-131, +10), which represents the period from 131 days before the announcement date, to, 10 days after the announcement date (Cakici *et al*., 1996). The first 120 days in this period (-131 through to -11) is designated as the estimation period (hereafter 'EP') and the following 21 days (-10 through to +10) is designated as the test period (hereafter 'TP'). The continuously compounded logarithmic returns are employed as opposed to arithmetic returns since the former is more likely to be normally distributed and so conform to the assumptions of standard statistical techniques. The daily returns are computed using Equation 1 below:

$$R_{jt} = \ln\left[\frac{(P_{jt} + D_{jt-1})}{P_{jt-1}}\right], \qquad \text{Equation 1}$$

where, *ln* denotes natural logarithm and

R_{jt} = return on security *j*, at time *t* (days);

P_{jt} = share price of security j, at time *t* (days)*;*

D_{jt-1} = dividend paid on security *j*, at time *t-1* (days); and

P_{jt-1} = share price of security *j*, at time *t-1* (days).

During the EP, i.e., time window (-131,-11), we estimate the expected return parameters for each acquirer. This is achieved by regressing daily returns calculated using Equation 1 over the time window (-131, -11), against the daily returns on the ASX All Ordinaries Index (Otchere and Ip, 2006). Specifically, market model parameters for each acquiring company, *j*, is calculated using Equation 2 below:

$$R_{jt} = a_j + b_j R_{mt} + e_{jt}, \qquad \text{Equation 2}$$

where,

R_{jt} = return on security *j*, at time *t* (days);

a_j = intercept coefficient for security *j*;

b_j = regression coefficient for security *j*;

R_{mt} = return on the ASX All Ordinaries Index, at time *t* (days); and

e_{jt} = error term associated with security *j*, at time *t* (days).

Equation 2 effectively partitions R_{jt} into two components: a linearly related systematic component (R_{mt}) and an unsystematic component (e_{jt}), which is assumed to be uncorrelated with R_{mt}. Equation 2 is estimated over the 120 day EP using standard ordinary least squares (OLS) regression method. This approach is a consistent estimation procedure for the standard market model parameters (MacKinlay, 1997). The estimated parameters for a_j and b_j for each security and the realised return on the ASX All Ordinaries Index on

day t (where, $t \in [-10,+10]$) are then used to estimate expected returns in the TP, given by time window (-10, +10).

The daily abnormal returns are then calculated for each acquirer during the TP, time window (-10, +10), as the difference between actual returns in Equation 1 and the expected returns from Equation 2. Specifically, the abnormal return for security j on day t is calculated as shown by Equation 3 below:

$$AR_{jt} = R_{jt} - \hat{a}_j - \hat{b}_j R_{mt}, \quad \text{Equation 3}$$

where,

AR_{jt} = abnormal return on security j, at time t (days);

R_{jt} = return on security j, at time t (days) for (-10, +10);

$\hat{a}_j$ = estimated intercept coefficient for security j (from Equation 2);

$\hat{b}_j$ = estimated regression coefficient for security j (from Equation 2); and

R_{mt} = return on the ASX All Ordinaries Index, at time t (days) for (-10, +10).

For a sample of T firms, the daily average abnormal return (AAR) for each day t is then calculated using Equation 4 below:

$$AAR_t = \frac{1}{T}\sum_{j=1}^{N} AR_{jt}. \quad \text{Equation 4}$$

In order to capture the effect of a takeover announcement on acquiring company share prices we calculate cumulative average abnormal returns (CAARs) by accumulating AARs over the time window (-1, +1). Since we also employ wider time windows as robustness checks, CAARs are also calculated for (-5, +5) and (-10, +10) time windows. For the time window (-1, +1), the CAAR can be represented as:

$$CAAR = \sum_{t=-1}^{t=+1} AAR_t. \quad \text{Equation 5}$$

Table 2 provides specific variable definitions employed in the calculation of CAARs as explained above.

Table 2. Variable definitions (Equations 1 to 5 – measuring short-horizon returns)

Variable		Definition
Dependant Variables		
R_{jt}	Daily Return	The daily return on security *j* at time *t*; *t* is in days. Daily return is measured over the time window (-131, +10) where (-131, -11) denotes the estimation period and (-10, +10) denotes the test period.
AR_{jt}	Abnormal Returns	The abnormal return for security *j* at time *t*, where *t* is in days. Abnormal returns are calculated as the difference between expected return at time *t*, and actual return at time *t* over the three test periods (-10, +10), (-5, +5) and (-1, +1).
AAR_t	Average Abnormal Returns	The average abnormal return at time *t*, where *t* is in days. Average abnormal returns are calculated as the average abnormal return experienced by all securities in the sample over the test period (-10, +10).
$CAAR$	Cumulative Average Abnormal Returns	The cumulative average abnormal return calculated over the three time windows (-10, +10), (-5, +5) and (-1, +1). This is calculated as the sum of the average abnormal returns for each day in the particular time window.
Independent Variables		
P_{jt}	Share price	The share price of security *j* at time *t*; *t* is in days. This share price is required for over the time window (-131, +10).
D_{jt-1}	Dividend	The dividend paid by security *j* at time *t*-1, where *t* is in days.
P_{jt-1}	Share Price (lagged)	The share price of security *j* at time *t*-1; *t* is in days. This share price is required for over the time window (-132, +9).
R_{mt}	Return on All Ordinaries	The daily return from the ASX All Ordinaries Index at time *t*, which is used as a market proxy. Daily returns are required for over the time window (-131, +10).

To test hypotheses H_1 and H_2 we check whether CAARs for DMA and CBMA are significantly different from zero, respectively. To that end, the following test statistic as proposed by Kothari and Warner (1996) is utilised:

$$\frac{CAAR}{\sigma_{CAAR}} \times \sqrt{N} \qquad \text{Equation 6}$$

where,

$CAAR$ = Cumulative average abnormal return over the specified time window;
σ_{CAAR} = Standard deviation of CAAR over the specified time window; and
N = The number of firms in the sample.

The null hypotheses of H_1 and H_2 will be rejected in favour of their respective alternative hypotheses if estimated CAARs are statistically different from zero for the DMA sample and CBMA sample, respectively. Kothari and Warner (1996) test statistic (given in Equation 6) is utilised to assess whether calculated CAARs are statistically different from zero.

3.3 Computing long-horizon abnormal returns

There are two established methods in the literature to measure long-horizon shareholder wealth effects: (1) the buy-and-hold abnormal returns (BHAR) approach and (2) the calendar-time portfolios (CTAR) approach. According to Fama (1998), the CTAR methodology dominates the BHAR approach for three important reasons. Firstly, the former is less susceptible to the 'bad model' problem that manifests itself within the BHAR approach.[4] Secondly, by forming monthly calendar-time portfolios, the CTAR approach automatically accounts for all cross-correlations in event-firm abnormal returns. Thirdly, the distribution of the CTAR abnormal returns estimator is better approximated by a normal distribution, allowing for classical statistical inference. This view is echoed by Mitchell and Stafford (2000) who argue that the CTAR

methodology is more robust to critical statistical problems, and, it has more power to identify reliable evidence in event samples than the BHAR. Barber and Lyon (1997) and Kothari and Warner (1996) provide simulation evidence that biases arise from the BHAR approach producing questionable abnormal return estimates. Following this rationale, we utilise the CTAR approach for estimating the long-horizon abnormal returns for our sample of Australian acquirers.

We evaluate long-horizon abnormal returns for up to thirty-six months (+36) after the takeover announcement for each acquirer (Mitchell and Stafford, 2000). The twelve-month (+12) and twenty four-month (+24) post-acquisition announcement abnormal returns are also used as robustness checks and to ensure comparability with similar studies (for example, Andre *et al*., 2004, Conn *et al*., 2005). For each calendar month between January 1993 and December 2004 we form a value-weighted (hereafter 'VW') portfolio of Australian firms that made an M&A announcement within the preceding three years. The value-weighted approach is employed due to the observed, skewed distribution of DMA and CBMA announcements in our sample.

Creating VW portfolios involves weighting the company-specific monthly abnormal returns by the market capitalization of the company in that particular month. Portfolios are rebalanced each month to drop all acquirers that reach the end of their 36 month period, and companies that have just announced a transaction are added to portfolios. By creating portfolios each calendar month between 1996 and 2007, we obtain a time-series of portfolio returns. As employed by Andre *et al*., (2004), we require each event portfolio to have a minimum of five observations; otherwise that particular month is removed from the time-series of portfolio returns. Monthly-excess returns are then calculated by subtracting the 10-year Australian Treasury Bond rate (which is used to proxy the risk-free rate) from the monthly portfolio returns. We then regress monthly-excess returns on the Fama-French three factor model (Fama and French, 1993) as follows:

$$R_{pt} - R_{ft} = \alpha + \beta_m (R_{mt} - R_{ft}) + \beta_s SMB_t + \beta_h HML_t + \varepsilon_t, \qquad \text{Equation 7}$$

where,

R_{pt} = Monthly calendar-time portfolio return of portfolio *p*, at time *t* (months);

R_{ft} = Monthly 10-year Australian Government Bond rate, at time *t* (months);

α = Average monthly abnormal returns;

β_m = Regression coefficient for excess-return on the ASX All Ordinaries Index;

R_{mt} = Monthly return on the ASX All Ordinaries Index, at time *t* (months);

β_s = Regression coefficient for size-factor SMB;

SMB_t = Size factor at time *t* (months), from Fama-French three factor model;

β_h = Regression coefficient for book-to-market factor HML;

HML_t = Book-to-market factor at time *t* (months), from Fama-French three factor model; and

ε_t = Error term associated with monthly calendar-time excess-returns, at time *t* (months).

Table 3 provides a detailed summary of the variables employed to calculate long-horizon abnormal returns as shown in Equation 7.

The model parameters in Equation 7 are estimated using ordinary least squares (OLS) regression, which is the standard estimation procedure for use with VW portfolios and the Fama-French three factor model (for example see, Mitchell and Stafford (2000); Andre *et al*., (2004)). Within this framework, say, for the time window (-36, +36), the intercept term, α, represents the average monthly abnormal return endured by the sample of acquirers over three years. The null hypotheses of H_3 (covering the DMA sample) and H_4 (covering the CBMA sample) will be rejected in favour of their respective alternative hypotheses if corresponding α values are statistically different from zero.

Table 3. Variable definitions (Equation 7 - measuring long-horizon returns)

Variable		Definition
Dependant Variables		
$R_{pt} - R_{ft}$	Portfolio excess-returns	The monthly portfolio excess-returns at time *t*, where *t* is in months. This is calculated as the excess return from the VW portfolios over the risk-free rate each month for (+36), (+24) and (+12).
Independent Variables		
α	Abnormal Returns	The average monthly abnormal returns to the sample of acquirers. This is calculated for portfolios estimating returns over (+36), (+24) and (+12).
R_{mt}	Return on All Ordinaries	The monthly return from the ASX All Ordinaries Index at time *t*, which is used as a market proxy. This is required for up to 36 months after the acquisition announcement.
R_{ft}	Risk-free Return	The monthly 10-year Australian Government Bond rate at time *t* which is used as the risk-free rate. This is required for up to 36 months after the acquisition announcement.
SMB_T	Size Factor	The monthly small-minus-big size factor at time *t* from the Fama-French three factor model. This is required for up to 36 months after the acquisition announcement.
HML_t	Book-to-market Factor	The monthly high-minus-low book-to-market factor at time *t* from the Fama-French three factor model. This is required for up to 36 months after the acquisition announcement.

4. Results and discussion

4.1 Short-horizon wealth effects

Table 4 presents the short-horizon wealth effects endured by Australian acquirers following DMA and CBMA announcements. With regard to DMA announcements (Hypothesis H_1), over the time window (-1, +1), Australian bidders experienced a CAAR of -1.07% significant at the 1% level. The robustness of these results is sought by increasing the time window over which CAARs are calculated. For time windows (-5, +5) and (-10, +10), we find significant abnormal returns of -1.77% and -1.86%, respectively. These results show that Australian acquirers' shareholders endure significant negative returns in the short-term following M&A announcements. Thus, Hypothesis H_1 is rejected.

Table 4. Short-horizon abnormal returns to shareholders of Australian acquirers

		Robustness Time Windows	
Time Window (Days)	(-1, +1)	(-5, +5)	(-10, +10)
DMAs	-0.0107	-0.0177	-0.0186
	*(-2.9278)***	*(-2.5222)***	*(-1.9155)**
	0.0102	0.0126	0.0111
CBMAs			
	*(4.3988)***	*(2.8528)***	*(1.83143)**

Note: Figures in parentheses are the *t*-statistics. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Our results reveal further that Australian acquirers in DMAs incur the largest CAARs during the time window (-10, +10). This observation is consistent with similar recent studies, which also find that CAARs to acquirers increase when a wider time window is adopted (see, for example Eckbo and Thorburn (2000) and Goergen and Renneboog (2004)).

The daily average abnormal returns (AARs) used to calculate the CAARs are reported in the Column 2 of Table 5 (for the DMA sample) as an additional robustness check. Arguably, the AAR of significant -0.60% on the day before the announcement can possibly be explained by the

leakage of insider information before bid is actually announced to the market. An AAR on the day of the bid announcement of significant 0.65% indicates that the market overreacts and perceives the announcement as positive news initially. This is, however, followed by three consecutive days of market correction with significant negative AARs.

The results for Hypothesis H_1 are consistent with similar recent studies that also employ the market model to compute short-horizon abnormal returns. For instance, Mulherin and Boone (2000, p.132) find that acquirers endure significant abnormal returns of -0.37% during the time window (-1, +1) for a sample of 281 acquisitions by U.S. companies. Conn *et al*., (2005, p. 835) who study 576 acquisitions by U.K. acquirers during the period 1984-1998 find CAAR's over the time window (-1, +1) to be -0.99%.

Table 5. Short-horizon average abnormal returns (AARs) to shareholders of Australian acquirers

	DMAs	CBMAs
Sample Size	*142*	*55*
Day		
-10	-0.0018	-0.0088***
-9	0.0030*	0.0054***
-8	-0.0045**	0.0032**
-7	0.0012	-0.0018*
-6	0.0001	0.0031**
-5	0.0011	0.0005
-4	0.0049***	-0.0032***
-3	0.0029*	0.0006
-2	-0.0007	0.0038***
-1	-0.0060***	0.0007
0	0.0065***	0.0026**
+1	-0.0113***	0.0069***
+2	-0.0037**	-0.0016
+3	-0.0033*	0.0074***
+4	0.0004	-0.0003
+5	-0.0087***	-0.0048***
+6	0.0001	-0.0014
+7	0.0001	0.0039***
+8	-0.0015	-0.0028**
+9	0.0003	-0.0043***
+10	0.0021	0.0019*

Note: ***, ** and * indicate statistical significance at the 1%, 5% and 10% level respectively.

The short-horizon CAARs earned by Australian acquirers engaged in CBMAs (related to hypothesis H_2) are also given in Table 4. Over the time window (-1, +1), bidders experienced a CAAR of 1.02% significant at the 1% level. The robustness of this finding is verified by the CAARs for time windows (-5, +5) and (-10, +10). We find statistically significant abnormal returns of 1.26% and 1.11% for the two time windows, respectively. Given the consistency of these results, we reject hypothesis H_2. Put differently, our findings uniformly indicate that Australian acquirers' shareholders endure short-horizon significant abnormal returns following CBMA announcements.

The AARs used to calculate the CAARs for acquirers engaged in CBMA are presented in Column 3 of Table 5 as an additional robustness check. We observe that the acquirers perform well in the two days leading up to the bid, with significant positive ARRs. Furthermore, on the bid announcement date acquirers earn a significant 0.26%, followed by a significant 0.69% the day after the announcement. Positive abnormal returns on these days further suggest that the market perceives the acquisition of a cross-border target as positive news and adjusts the share price of the acquirer accordingly.

Our findings for short-horizon wealth effects to acquirers in CBMAs (tested using hypothesis H_2) are consistent with previous studies that employ the same methodology. For

example, Kang (1993, p.355) reports that over the short-horizon time window (-1, +1), Japanese acquirers of U.S. firms earn positive abnormal returns of 0.51%. Cakici *et al*., (1996, p.317) report a CAAR of 0.84% for short-horizon time window (-1, +1). These finding support our conclusion that shareholders of acquirers in CBMA endure positive wealth effects in the short-horizon.

4.2 Long-horizon wealth effects

The long-horizon abnormal returns endured by Australian acquirers engaged in DMA (related to hypothesis H_3) are presented in Table 6. The three-year post-acquisition abnormal returns represented by time window (+36) indicate that Australian acquirers experience statistically insignificant monthly abnormal returns of -0.15%. The two alternative long-horizon time windows employed as a robustness measure present consistent results. We find statistically insignificant abnormal returns of -0.02% per month and -0.06% per month for the time windows of (+12) and (+24), respectively. Therefore, we fail to reject hypothesis H_3 that Australian acquirers endure zero long-horizon abnormal returns following DMA announcements.

Table 6. Long-horizon abnormal returns to shareholders of Australian acquirers

		Robustness Time Windows	
Time Window (Months)	(+36)	(+24)	(+12)
DMAs	-0.0015	-0.0002	-0.0006
	(-0.7343)	*(-0.0615)*	*(-0.2339)*
CBMAs	-0.0061	-0.0075	-0.0058
	*(-1.9547)***	*(-1.9337)**	*(-1.6240*)*

Note: Figures in parentheses are the *t*-statistics. ***, ** and * indicate statistical significance at the 1, 5 and 10% levels, respectively.

Table 6 also presents the long-horizon abnormal returns endured by Australian acquirers engaged in CBMA (related to hypothesis H_4). The three-year post-acquisition abnormal returns represented by time window (+36) indicate that Australian acquirers experience significant monthly abnormal returns of -0.61%. The two alternative long-horizon time windows employed as robustness measures present consistent results. We find statistically significant abnormal returns of -0.75% per month and -0.58% per month for the time windows of (+24) and (+12), respectively. Therefore, our results uniformly reject hypothesis H_4 that Australian acquirers endure zero long-horizon abnormal returns following CBMA announcements.

Our calendar-time methodology results for acquirers of cross-border targets are similar in magnitude to those of Conn *et al*., (2005, p. 835), who find that UK acquirers experience three-year abnormal returns of -0.71% per month. However, our findings are smaller in magnitude to Canadian evidence (-1.15% per month) reported by Andre *et al*., (2004, p. 40).

Overall, shareholders of Australian acquirers engaged in DMA incur significant wealth losses in the short-horizon. Our results do not provide clear evidence to show whether if expected synergies from DMAs are realised or not by the acquirer in the long-horizon. With respect to CBMAs, short-horizon results show that shareholders earn significant positive abnormal returns. However, our findings of long-horizon wealth effects are against foreign direct investment theories that suggest acquirers in CBMAs can earn positive abnormal returns by taking advantage of differences in capital factor markets. Instead, results for CBMA argue in favour of agency and management hubris theories implying that CBMAs may merely enable empire building by management, destroying value for the acquiring company shareholders.

5. Conclusion

This paper investigated the short-horizon and long-horizon wealth effects endured by shareholders of Australian acquirers engaged in DMAs and CBMAs. The sample consisted of 197 business takeover announcements. As far as it could be ascertained, this is the first study to estimate both short-horizon and long-horizon wealth effects experienced by Australian acquirers involved in DMAs and CBMAs.

Overall, results indicate that acquirers in DMAs endure significant negative abnormal returns in the three-days surrounding bid announcements. The long-term wealth effects (represented by 12-, 24- and 36-month time windows), however, do not consistently show whether expected synergies from takeover activity are realised by the Australian acquirers in the long-horizon. In contrast, CBMA announcements resulted in significant positive wealth effects for Australian acquirers in the three-days surrounding bid announcements. In the three years following

CBMA announcements, however, acquirers endured significant negative abnormal returns. This finding suggests that in the short-horizon investors perceive CBMA announcements positively, but in the long-horizon acquirers are unable to realise the benefits of international diversification. Hence our results argue against foreign direct investment theories that suggest acquirers in CBMA can earn positive abnormal returns by taking advantage of differences in capital factor markets. Instead, the findings point in favour of agency and management hubris theories implying that CBMA activity may merely be a part of empire building by management, destroying value for the acquiring company shareholders.

Given that Australian acquirers accounted for over 51% of announced mergers and acquisitions in the Asia Pacific region (excluding Japan) during 2006, our findings present important implications. The Australian stock market (ASX) investors (both institutional and individual) should find this research of use when assessing their investments in listed companies that make M&A announcements. For instance, in the short-horizon, investors may be inclined to hold companies involved in CBMAs but then liquidate their investments before the long-horizon negative wealth effects set in. Investors should also consider readjusting their portfolios in line with short-horizon negative wealth effects following DMA announcements. For the managers, our findings appear as an 'eye opener' and provide quantitative evidence on the negative wealth effects of M&A transactions. Arguably, our results highlight the importance of conducting orderly and scientific examination of takeover targets prior to announcing business takeover intentions. In other words, managers should ensure that business takeovers add value to their shareholders. Finally, the regulators should implement guidelines to ensure sufficient information disclosure regarding M&A announcements so that market participants can make informed decisions.

Based on the key limitations of this research, we suggest following avenues for future research. The present study could be extended by considering the alternative BHAR methodology to verify the long-horizon wealth effect estimates obtained in this study using the calendar-time approach. Another possible extension is to investigate the possible firm-specific and macroeconomic determinants of short-horizon and long-horizon wealth effects endured by shareholders of Australian acquirers.

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End-notes

1. [A DMA is defined as an acquisition of an Australian publicly listed target, by an Australian publicly listed acquirer, as employed by Andre *et al*., (2004). A CBMA is an acquisition by an Australian publicly listed firm of a public target listed in a country other than Australia, as employed Conn *et al*., (2005).]
2. [Otchere and Ip (2006, p.218) explore the short-horizon wealth effects endured by Australian takeover targets during 1990-2000. They find that in twenty days surrounding the bid announcement, denoted by (-10, +10), targets earn a significant 7.4% return. This study, however, does not investigate the wealth effects experienced by acquirers' shareholders following M&A announcements.]
3. [Generally, targets' shareholders endure significantly positive abnormal wealth effects following CBMA announcements (Aw and Chatterjee, 2004).]
4. [The 'bad model' problem arises due to the presence of systematic errors, which are compounded in long-horizon return measurement (Fama, 1998).]