

Melbourne Centre for Financial Studies Academic Research Grant

Synergistic gains in the 21st century – The role of R&D in Australian Mergers and Acquisitions from 2000 to 2008

Amalia Di Iorio, School of Economics, Finance and Marketing, RMIT University, Associate Professor
Richard Heaney, School of Economics, Finance and Marketing, RMIT University, Professor
Terrence Hallahan, School of Economics, Finance and Marketing, RMIT University, Associate Professor
Dr Michael Graham, School of Economics, Finance and Marketing, RMIT University, Senior Lecturer

1. Background and aims of project

This project focuses on synergistic gains in the 21st century with particular focus on Australian mergers and takeovers. Much of the research in the area focuses on the magnitude of the takeover premium for the acquirer/target or on method of payment. This research project will pursue the question of whether, and to what extent, the R&D intensity of the acquirer/target, the method of payment and the method of financing (including Private Equity funds) produce synergistic gains.

There is a significant body of literature that explores the effects of cross-border acquisitions. Generally, this literature focuses on the impact of foreign direct investment on the stock price of the bidding and/or target firms and investigates the cross-border effect from a number of different perspectives that include firm specific, industry specific and country specific factors, as well as economic variables. Moreover, much of the literature concentrates on the activity of US and UK MNCs. The plan of this project is to extend the existing literature in the following dimensions:

1. To examine the effects of cross-border acquisitions of Australian companies on the shareholder wealth of both the acquiring and acquired firms for the period 2000 to 2008.
2. To investigate whether, and to what extent, cross-border acquisitions produce synergistic gains by estimating the combined wealth effect of such acquisitions for paired Australian and foreign firms.
3. To investigate the importance of the R&D intensity, the method of payment and the method of financing (including the role of Private Equity funds) of the acquirer and the target in generating synergistic gains.

Although empirical work has been undertaken into the merger and acquisition activity in Australia, the research in this area since the 1980's is limited. A comprehensive survey by da Silva Rosa and Walter (2004) indicates that Australian studies have focused on traditional approaches, including accounting-based research [for example Sharma and Ho (2002)]. Our study will incorporate the most recent literature and investigate innovative findings in an Australian context. For example, following Eun, Kolodny and Scheraga (1996) we will test the

synergy and internationalization hypotheses for international acquisitions using a sample of Australian companies for the period 2000 to 2008, with particular focus on the synergistic gains of the R&D capabilities of both the acquirer and bidder. This project will provide some important insights, especially since the Australian market for mergers and acquisitions has become significantly more open and competitive over the past decade. In addition, our sample will capture the post-internet crisis period.

2. Significance and innovation

This project will add significantly to our limited knowledge of synergistic gains generated by mergers and acquisitions involving Australian companies. This is particularly relevant given the recent trend towards the integration of world markets that has led to increased global diversification. Given the volume of Australian funds under management, the findings of this project will be of great interest to mutual fund managers in their industry and stock selection decisions. Specifically, the project will provide -

- new information about the drivers of the synergistic gains, with particular respect to investigating the effect of the R&D intensity of the acquiring and target firms.
- an insight to the role of Private Equity funds in generating synergistic gains.

See Tables 1 to 4 for a preliminary survey of the data.

3. Description of Approach

In acquisitions, the acquirer's desire to redeploy the combined assets, both tangible and intangible, of its target and itself toward higher-valued uses should generate synergistic gains. Any increase in value will be capitalized into the market value of the combined firm. Thus, synergistic gains can be estimated by the difference (ΔW_C) between the market value of the combined firm (W_C) and the sum ($W_A + W_T$) of the stand-alone valuations of the acquirer and target firms, i.e., $(\Delta W_C) = W_C - (W_A + W_T)$. As a result, we can test the 'synergy hypothesis' for acquisitions simply by testing if (ΔW_C) is greater than 0 (zero). Additionally, the sources of gains can be examined by relating the cross-sectional variations of observed wealth changes to various characteristics of acquiring and target firms.

The standard mean-adjusted return technique will be employed to measure abnormal stock returns in our empirical investigations. For an individual stock, we will estimate the mean return as the average of historical daily returns during the 200-day period beginning 261 days prior to the initial acquisition announcement by the successful acquirer. Individual residuals will be averaged across sample firms to obtain mean abnormal returns (AR) and cumulative abnormal returns (CARs) will be calculated. We will use standardized ARs (SARs) and standardized CARs (SCARs) for statistical tests. Resulting statistics tend to follow a t-distribution more closely than those obtained from raw CARs. We will standardise the ARs and CARs using the estimated standard deviation of sample security returns from the 200-day estimation periods. We will compute both SARs and SCARs in Australian dollars.

To examine the synergistic gains and their division, we will initially examine the synergy hypothesis for acquisitions by estimating the magnitude of combined wealth gains. Following Bradley et al. (1988), we will estimate the total wealth gains using a paired sample of acquirers

and targets to test the synergy hypothesis. Specifically, we will estimate the (dollar) wealth gains as follows:

$$\begin{aligned}\Delta W_{Ti} &= W_{Ti} \times CART_i, \\ \Delta W_{Ai} &= W_{Ai} \times CARA_i, \\ \Delta W_{ci} &= W_{Ai} + \Delta W_{Ti},\end{aligned}$$

where

W_{Ti} = market value of the target firm's stock as of the end of six trading days prior to the first bid announcement, net of the value of the target's stock already owned by the acquirer,

$CART_i$ = cumulative abnormal return to the target firm from five trading days prior to the announcement of the first bid through five trading days after the announcement of the successful bid,

W_{Ai} = market value of acquirer's stock, in terms of Australian dollars, as of the end of six days prior to the first announcement made by the acquiring firm,

$CARA_i$ = cumulative abnormal return to the acquiring firm from five trading days before the announcement of the first bid made by this firm through five trading days after the announcement of the successful bid,

ΔW_{ci} = the combined wealth gain from the acquisition in terms of Australian dollars, which is the sum of acquirer shareholder gains (ΔW_{Ai}) and target shareholder gains (ΔW_{Ti}).

Subsequently, we will explain the cross-sectional variation in wealth effects for targets and acquirers by estimating several regressions using standard CARs (to avoid possible heteroskedasticity) and the following variables:

COUNTRY = dummies representing countries of acquirers
AR&D = research and development expenditure of the acquirer divided by its sales
TR&D = research and development expenditure of the target divided by its sales
CR&D = sum of *AR&D* and *TR&D*
RMV = market value of the target's equity divided by the market value of the acquirer's equity
CURRENCY = variable representing the strength of acquirer's currency relative to the Australian dollar.

These will be supplemented by dummy variables for Australian domicile, line of business, multiple bidders and deal size.

In this analysis, using standard methodology and data obtained from Zephyr (Bureau Van Dijk), our initial focus will be on the importance of internalization in explaining wealth changes to acquiring firms. Internalization can either proceed forward (acquirer invests to internalizes market for its own intangibles) or backwards (acquirer takes over target and internalizes intangibles held by the latter). The intangible assets of greatest interest will be the R&D capabilities of the acquiring and target firms. We will investigate, using regressions, whether acquirers and targets R&D intensity affect acquirer's gains. We will control for the effects of method of payment, method of financing and the presence of Private Equity funds.

This study will add to our limited recent knowledge of the shareholder wealth effects of mergers and acquisitions in the Australia market, particularly in relation to R&D intensive companies. This is important to fund managers in their stock investment decisions. For example, early research indicated that target firm shareholders received the majority share of the gains from a takeover, while on many instances acquiring company shareholders suffered a loss in the value of their investment. Our study will provide new and current evidence of the effect of M&As on the shareholders of Australian companies and the sources of synergistic gains from cross-border acquisitions. The project will also examine the increasing importance and impact of Private Equity funds in M&A activity.

We anticipate that this study will provide the foundation for further work in the area of cross-border acquisitions of Australian companies.

Table 1: Completed Mergers and Acquisitions involving Australian companies: Acquirers by country

Acquirer country	Count (2000-2008)
Australia	4136
UK	296
US	284
others	624
Total	5340

Table 2: Completed Mergers and Acquisitions involving Australian companies: Targets by country

Target country	Count (2000-2008)
Australia	4241
UK	162
US	241
others	696
Total	5340

Table 3: Completed Mergers and Acquisitions involving Australian companies: Method of payment

Method of payment	Count (2000-2008)
Cash	1619
Debt assumed	105
Deferred payment	60
Earn-out	186
Loan notes	11
Other	40
Shares	789
Total	5340

Table 4: Completed Mergers and Acquisitions involving Australian companies: Method of financing

Final deal financing	Count (2000-2008)
Capital increase	7
Capital increase convertible bond issue	4
Capital increase convertible loan notes	6
Capital increase open offer	1
Capital increase placing	8
Capital increase private placing	26
Capital increase rights issue	9
Capital increase vendor placing	1147
Leveraged buy out	8
Mezzanine	2
New bank facilities	143
Private equity	188
Unspecified	3789
Venture capital	2
Total	5340

References

Bradley, M., Desai, A. & Han Kim, E. 1988 “Synergistic gains from corporate acquisitions and their division between the stockholders of target and acquiring firms” *Journal of Financial Economics*, 21, 3 - 40

Da Silva Rosa, R. & Walter, T 2004 “Australian mergers and acquisitions since the 1980’s: What do we know and what remains to be done?” *Australian Journal of Management*, 29, i – xiii

Eun, C.S., Kolodny, R. & Scheraga, C. 1996 “Cross-border acquisitions and shareholder wealth: Tests of the synergy and internationalization hypothesis” *Journal of Banking and Finance*, 20 1559-1582

Sharma, D.S. & Ho, J. 2002 “The impact of acquisitions on operating performance: Australian evidence’ *Journal of Business Finance and Accounting*, 29, 155-200

Y. and Di Iorio, A., (2007), "The Cross-sectional Relationship between Stock Returns and Domestic and Global Factors in the Chinese A-share Market" *Review of Quantitative Finance and Accounting*, 29: 181-203