

Ownership Structure, Types of M&A and Long-Term Performance

(Struktur Pemilikan, Jenis M&A dan Prestasi Jangka Panjang)

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ABSTRAK

This study investigates the influence of ownership structure on long-term post-merger operating performance of acquirers. The findings reveal evidence of merger and acquisitions mitigating the long-term negative performance of acquirers. Board ownership variables have a positive and significant influence on the operating performance measures. Moreover, evidence supports the negative relationship at high substantial shareholder ownership levels. However, no evidence is found on the interaction effects between ownership structure variables and long-term post-merger performance of acquirer firms.

Keywords: Merger and acquisitions; long-term performance; event studies

ABSTRACT

Kajian ini menyiasat pengaruh struktur pemilikan saham terhadap prestasi jangka panjang firma pasca penggabungan. Penemuan menunjukkan bukti bahawa terdapat aktiviti penggabungan telah memperbaiki prestasi firma dengan cara mengurangkan pencapaian negatif jangka panjang firma pengambilalih tersebut. Pemboleh ubah pemilikan saham oleh pihak pengurusan firma mempunyai pengaruh positif dan signifikan terhadap prestasi operasi penggabungan. Juga bukti menunjukkan terdapat hubungan negatif di peringkat pemilikan pemegang saham besar yang lebih tinggi. Walau bagaimanapun, kajian ini tidak menemui apa-apa bukti kesan interaksi antara pemboleh ubah struktur pemilikan dan prestasi jangka panjang pasca penggabungan firma pengambilalih.

Kata kunci: Penggabungan dan pengambilalihan; prestasi jangka panjang; kajian peristiwa

INTRODUCTION

The use of accounting information to evaluate bidder firms that engage in merger and acquisition (M&A) activities on the basis of operating performance provides additional insight into the long-term performance of M&A activities. This statement is especially true in the Australian setting. Takeover activity is a significant part of the Australian corporate market landscape, as demonstrated by the frequency and value of takeover transactions. In 2009, 3,353 bids valued at US\$151.491 billion were transacted for Australian target firms. This value represented 25 percent of all M&A activities in the Asia Pacific region, or 6.71 percent of global M&As. Although Australia's M&A value declined to US\$132 billion in 2010, the country has maintained the top rating for merger activities within the Asia Pacific region since 2006.

Da Silva and Walter (2004) conducted a survey on research done on the Australian M&A market. While considerable research was carried out on the causes and effects of mergers in Australia, studies on the relationship between corporate governance factors and M&As are limited. Therefore, the motivation of the present study is to examine the impact of M&A activities on long-term performance. This study also examines the impact of corporate governance on M&A performance from the ownership structure perspective using Australian data.

LITERATURE REVIEW

Mandelker (1974) pioneered the study on long-term M&A performance which incorporated a large sample with a stock return model. Later, other researchers (Brown & Da Silva Rosa 1998; Gregory 1997; Langetieg 1978; Loughran & Vjih 1997; Moeller, Schlingemann & Stulz 2004) indicated that their findings are consistent with the efficient market hypothesis. Healy, Palepu and Ruback (1992) and Manson et al. (2000) found that the cash flow operating returns for targets and bidders of UK firms improved in the five years following the mergers, lending support to the capability of M&A activities to improve firm performance.

Studies on the relationship between concentrated ownership and firm performance have been very encouraging. Ownership structure has a significant impact on firm performance (Black, Jang & Kim 2006; Chen, Guo & Mande 2003; Chen 2001; Denis, Denis & Sarin 1997; Durnev & Kim 2005; Gorton & Schmid 2000; La Porta, Lopez-de-Silanes & Shleifer 2002). As ownership stake increases, blockholders have greater incentives to increase firm value and monitor management than dispersed shareholders do. Concerted actions by large shareholders are easier to undertake than those by small shareholders. Specifically, large investors have the interest and power to get and demand their money back. Thus, ownership

concentration can be a solution to agency problems and improve firm performance.

However, there is evidence that indicates an insignificant or even negative influence of concentrated ownership. Demsetz (1983), Demsetz and Lehn (1985), Holderness and Sheehan (1988) and Mulari and Welch (1989) did not find any evidence of a significant relation between this type of ownership and firm value. These studies suggested that no difference exists between firms with concentrated owners and those with dispersed owners.

In the market for corporate control, Lewellen, Loderer and Rosenfeld (1985) showed that the announcement period of abnormal share returns is positively related to the percentage of share ownership of bidder management. Their measures of ownership included Jensen and Meckling's (1976) alpha, which is the percentage ownership of senior management, and two cost/benefit indices intended to capture more accurately the benefits of making a poor bid and the associated costs. They used the ratio of the dollar value of management's shareholdings divided by their current compensation and the ratio of the expected annual income from shareholdings to current compensation. Their results held for each of the three measures of ownership. Agrawal and Mandelker (1987) showed a relationship between the shareholdings of managers and the investment decisions of their firms (mergers or divestures).

In the context of a possible tender offer, Stulz (1988) assumed that managers prefer control of firms and, consequently, refuse to tender their shares. This behaviour forces acquirers to pay high premiums to gain control when the management's stake is high, which could increase the ex-ante value of the target firm. Stulz (1998) argued that when management has no ownership stake (0 percent shareholding) or when their shareholding is large (e.g. more than 50 percent), management will always oppose hostile takeover attempts, resulting in a low ex-ante potential target firm value because no tender offers are made. However, if management holds small portions of share ownership (e.g. more than 0 percent but less than 50 percent), then the value of the firm will increase as the managers increase their shareholdings. In short, the relationship between managerial ownership and target firm value is nonlinear. At first, firm value increases as the managerial ownership increases, but beyond an optimal point, the firm value will decrease.

Duggal and Millar (1999) employed corporate takeover decision-making to examine the relationship between bidder gains and institutional ownership in bidder firms and concluded that institutional investors either enhance or diminish corporate efficiency and performance. Using OLS regression, they found that a positive relationship exists between bidder gains and institutional ownership. However, two-stage regressions controlling for institutional ownership endogeneity do not produce any relationship between bidder gains and the predicted values of institutional ownership. The findings

suggested that institutional investors play no significant role in the takeover market, do not enhance efficiency in the market for corporate control and have doubtful monitoring abilities.

Faccio, McConnell and Stolin (2006) documented that the creation of blockholder shareholdings after merger completion is one of the important determinants of acquirers' abnormal returns. Rose (2009) argued that a negative relation exists between industry-adjusted Tobin's Q and staggered boards when there are outside blockholders, and no relation when there are none. However, no documented evidence was presented on the relationship between blockholder concentration and post-merger performance.

Considerable evidence shows that conglomerates reduce a firm's value. Morck, Shleifer and Vishny (1990) and Byrd and Hickman (1992) found that the stock price reaction of bidders is significantly higher in acquisitions where the bidder and target firms have the same SIC code than in unrelated mergers. Furthermore, diversifying mergers could destroy shareholder value through i) activity diversification resulting in dis-economies of scope by creating added layers of management and bureaucracy (Berger & Ofek 1995); ii) increases in the value of debt by reducing the volatility of cash flows resulting in the transfer of wealth from shareholders to bondholders; and iii) diversified firms that invest too much in businesses with poor investment opportunities (Stulz 1990).

Conversely, other sources of value creation in the conglomerate type of merger are obtained from i) increase in market power through the firm's ability to pursue anti-competitive behaviour against current competition by virtue of numerous activities, location and size (Hitt, Ireland & Hoskisson 1997); ii) economies of scope (Dranove & Shanley 1995; Peteraf 1993; Teece 1980); and iii) greater efficiency that could lower average costs, as expanding into new activities allows the firm to draw upon information and skills they already possess (Berger & Ofek 1995).

Focus-increasing mergers could enhance value in several ways. i) By replacing less efficient managers with more effective ones, focusing mergers could improve the efficiency of the firms (Liu, Chen & Su 2017). Jensen and Ruback (1983) discussed the use of mergers to replace incompetent or lazy managers, while Jensen (1986) suggested that mergers that expand into new areas are usually low- or negative-return ventures given that their managerial skills are rarely transferable from one type of industry to another. ii) By focusing on a specific geographic or product area, merging firms could increase their market power and thereby take advantage of monopolistic or oligopolistic rents. iii) Focusing mergers could restore value by reducing overinvestment or the practice of managers of making capital investments in projects that do not have expected positive net present values. Amihud and Lev (1981) analysed the overinvestment problem in terms of a manager who wants to reduce the volatility of the return on his or her human capital by

entering conglomerate mergers that value-maximising shareholders would not enter. Berger and Ofek (1995) presented evidence that firms can restore value they have lost through diversification by increasing focus.

Seth (1990) found that related and unrelated acquisitions generated synergies and increased the value gains of shareholders, but neither group outperformed the other in such situation. Mandelker (1992) likewise reported that non-conglomerate and conglomerate mergers show negative performance over the five-year post-merger period by using a modified market model approach, with the acquirers' performance worse in non-conglomerate than in conglomerate mergers. Furthermore, the acquisition method of payment could affect merger outcomes, with cash-financed mergers exhibiting superior performance compared to other financing methods (Loughran & Vijh 1997; Gregory 1997; Mitchell & Stafford 2000; Megginson, Morgan & Nail 2003).

In sum, evidence is mixed on the value of business combinations for the acquiring company. The type of merger, whether focused or diversifying, that exhibits superior long-term performance is still a debated issue among researchers. Ownership structure variables (managerial, substantial and institutional) have been recognised as one form of agency cost reduction tool. However, at high levels of managerial and substantial shareholder ownership, evidence indicates negative effects on firm performance. Thus, many discrepancies in the existing studies may be explained by the unique characteristics of firms, different sample periods and the methodologies employed in each of the studies (Barber & Lyon 1997; Gregory 1997; Healy et al. 1992; Lyon, Barber & Tsai 1999). Nonetheless, little has been done to study the implication of ownership structure variables and merger type on the outcome of long-term post-merger performance, which this study will address.

Based on the theoretical arguments and findings above, this study develops the following hypotheses:

- H₁ M&A activities create significant value for acquirers, as reflected in the post-merger performance of bidder firms.
- H₂ The levels of managerial ownership have a significant influence on the post-merger performance of bidder firms.
- H₃ The levels of concentrated ownership have a significant influence on the post-merger performance of bidder firms.
- H₄ The levels of institutional ownership have a significant influence on the post-merger performance of bidder firms.

METHODOLOGY

This study investigated the influence of diversification and ownership structure (managerial, outside substantial and institutional) and its interaction effect on the long-

term post-merger operating performance of Australian acquirers. The process of sample selection involved several stages. Firstly, all completed M&A announcements that have reported deal values by firms listed on the Australian Securities Exchange (ASX) were considered. These initial samples were collected from the Bureau Van Dijk (Zephyr Database) and Thomson One Banker Deals (formerly SDC Platinum) databases from 1997 to 2009. Year 2009 was chosen as the cut-off year to provide three years of data for each firm after the initial announcement to measure post-merger performance. Hence, the data were from 1997 to 2013. From those initial populations, we then applied the following filters:

- The transaction was completed/successful.
- The payment method was disclosed.
- The percent of shares acquired in the deal was 50 percent or higher so as to focus on significant changes in control transaction.
- The acquirer was not engaged in another bid within the study period. This filter ensured no firm appeared more than once in our portfolios at any point in time.

Subsequently, ownership information was hand collected from annual reports. This study relied on the Morningstar DatAnalysis database as the initial source of annual reports. For the missing annual reports, we cross-checked with the Oriana and Osiris databases provided by the Bureau van Dijk Electronic Publishing and the Australian Securities Exchange website. The data on firm size and other annual accounting data were obtained from Thomson Financial DataStream.

Table 1 presents the summary statistics of the sample. Panel A provides information about the individual acquirers and several deal characteristics that were included as cross-sectional variables in the analysis. The sample construction involved several strategies as described above. From the Zephyr database, 2,017 completed mergers between January 1, 1997 and June 30, 2009 were identified. Of these deals, 512 involving foreign acquirers were excluded. From the remaining deals, the study excluded 329 Australian Proprietary Limited (Pty. Ltd.) acquirers and 355 acquisitions involving bidder firms with incomplete ownership structure information. Finally, this study was left with 821 sample acquirers.

The observation shows that the number of deals increased from year 2000 onwards. However, the average value of those deals fluctuated from year to year. In numbers (Panel B), most of the merger deals are in the services, mining and manufacturing industries, a finding that is consistent with the industrial landscape in Australia. However, in dollar value, mining and holding and other investment offices are dominant industries in merger activity during the study period. Lastly, the majority of merger activity involved Australian target firms and a lowest average transaction of AUD107.508 million, indicating the involvement of small target firms (Panel C).

TABLE 1. Panel A: Sample construction and transaction value (1997–2009)

Year	No. of completed Australian M&A announcements	Foreign acquirer	Australian Proprietary Limited (Pty. Ltd.) acquirer	Australian Public Limited acquirer	No. of completed M&As with governance information	Total transaction value (th. AUD)	Avg. transaction value (th. AUD)
1997	20	13	1	6	2	256,113.65	128,056.83
1998	24	14	4	6	3	80,634.17	26,878.06
1999	40	25	1	14	8	1,339,730.78	167,466.34
2000	129	39	14	76	39	414,593.75	10,630.61
2001	139	44	16	79	49	19,220,178.08	392,248.53
2002	133	41	16	76	38	1,934,352.12	50,904.01
2003	218	42	33	143	95	7,938,597.50	83,564.18
2004	236	57	36	143	101	5,785,210.49	57,279.31
2005	239	47	51	141	98	9,775,125.09	99,746.17
2006	218	51	40	127	93	16,097,899.25	173,095.69
2007	317	73	60	184	132	20,071,119.08	152,053.93
2008	223	42	43	138	126	18,225,032.73	144,643.12
2009*	81	24	14	43	37	2,067,449.21	55,877.01
Total	2,017	512	329	1,176	821	103,206,036	125,707.72

Note: * until end of June 2009

Panel B: Transactions by acquirer's primary SIC code

	Transactions		Avg. Transaction value (th. AUD)	Total transactions	
	No.	%		(th. AUD)	%
01–09 Agriculture, Forestry and Fishing	4	0.49	32,279.31	129,117.32	0.13
10–14 Mining	196	23.87	121,040.98	23,734,031.28	22.99
15–17 Construction	21	2.56	48,596.98	1,020,536.66	0.99
20–39 Manufacturing	144	17.54	69,907.25	10,066,644.36	9.75
40–49 Transportation and Public Utilities	66	8.04	198,565.26	13,105,307.18	12.70
50–59 Trade	46	5.60	137,205.64	6,311,459.68	6.11
60–64 Finance and Insurance	38	4.63	412,491.70	15,674,684.53	15.19
65 Real Estate	17	2.07	119,014.38	2,023,244.49	1.96
67 Holding and Other Investment Offices	82	9.99	239,804.08	19,663,934.82	19.05
70–89 Services	207	25.21	55,493.12	11,487,075.74	11.13
Total	821	100.00	125,707.72	103,206,036	100.00

Panel C: Transactions by target country

Country	# of Transactions	Total transaction value (th. AUD)	Avg. transaction (th. AUD)
Australia	652	70,095,435.65	107,508.33
New Zealand	18	6,494,046.62	360,724.81
United Kingdom	42	17,496,988.86	416,594.97
US	38	5,800,732.92	152,650.86
Others	71	3,318,832	46,744.11
Total	821	103,206,036	125,707.72

In this study, we adopted the method introduced by Healy et al. (1992). Similar to Healy et al. (1992), this study defined operating cash flow (OCF) as operating income plus depreciation and goodwill amortisation or, in other words, EBITDA. This measure is then deflated by the market value of assets, which is the firm market capitalisation plus the book value of net debt. The measure

will ensure that OCF is free from accounting methods, tax policy or acquisition financing bias, making the data easy to compare using traditional accounting returns of the acquirer firms over time and cross-sectionally.

This study will also look at different measures to identify the sources of synergy from M&As (Thanos & Papadakis 2012). This identification is based on, firstly,

a profitability indicator that uses the return on assets (ROA) and return on equity (ROE) ratios; secondly, an indicator of revenue enhancement represented by the total revenue over total assets ratio; and, lastly, a cost-saving indicator examining the variation in selling, general and administrative expenses. The first two profitability measures were used by Sharma and Ho (2002) and Lau, Proimos and Wright (2008), while the last two variables

are additional proxies for operational efficiency and cost-saving measurement. Lau et al. (2008) argued that these measures are relevant to shareholders as they may affect the risk and return of merged firms and 'are also cited by management as potential benefits of recommended mergers' (p.172). The performance determinants and their definitions are summarised in Table 2.

TABLE 2. Definition and source of each variable in this study

No.	Variables	Explanations	Availability
1.	Acquirer assets (<i>Tsize</i>)	Book value of the firm's assets as of the most recent annual report prior to the announcement but not more than 12 months prior (<i>Control variable</i>)	Data Stream
2.	Relative size (<i>RelSize</i>)	Size of the target total assets relative to that of the acquirer total assets (<i>Control variable</i>)	Data Stream
3.	Book-to-market equity (<i>Ab/m</i>)	Book-to-market ratio of the acquirer calculated immediately prior to the merger announcement and on a yearly basis [Cohen, Polk & Vuolteenaho (2003)] (<i>Control variable</i>)	Osiris
4.	Industry-match dummy (<i>Focus</i>)	Dummy variables; indicator variable equal to 1 if acquirer and target have the same two-digit SIC codes (<i>Control variable</i>)	Zephyr
5.	Cross-border targets (<i>Cb</i>)	Dummy variables; value is 1 if the target is from outside Australia and 0 otherwise (<i>Control variable</i>)	
6.	Payment dummy (<i>Cash</i>)	Transaction payment mode: cash or others. Value is 1 for cash only payment and 0 for other payment forms (<i>Control variable</i>)	Zephyr and SDC
7.	Blockholder ownership (<i>SubsOwn</i>)	Total percentage ownership by outside blockholder investors with 5 percent or more shares (excluding managerial and institutional ownership, if any) as reported at the end of the most recent financial year prior to the announcement	DatAnalysis
8.	Managerial ownership (<i>BodOwn</i>)	The combined ownership of all officers and directors as reported at the end of the most recent financial year prior to the announcement [Stulz et al. (1990), Song & Walkling (1993), Bauguess et al. (2009)]	DatAnalysis
9.	Institutional ownership (<i>InstOwn</i>)	Percentage ownership of professional investment managers and financial institutions as reported in the top 20 shareholders at the end of the most recent financial year prior to the announcement	DatAnalysis
10.	Operating cash flow (<i>OCF</i>)	Operating income plus depreciation and goodwill amortisation, then deflated by the market value of assets	Data Stream
11.	Return on asset ratios (<i>ROA</i>)	Operating profit divided by average total assets	Data Stream
12.	Return on equity ratios (<i>ROE</i>)	Operating profit divided by average shareholders' equity	Data Stream
13.	Revenue (<i>REV</i>)	Total revenue divided by average total assets	Data Stream
14.	Selling, general and administrative expenses (<i>ADM</i>)	Selling, general and administrative expense divided by sales	Data Stream

Each of the performance determinants was calculated for six years, three years for pre-merger (years -3, -2 and -1) and three years for post-merger (years +1, +2 and +3). Each of the acquirer firms' performance determinants were adjusted on a yearly basis by applying the median industry value based on the firms' SIC codes (Ghosh 2001; Healy et al. 1992) to create industry-adjusted operating performance measures. The processes of creating industry benchmarks were done manually, as industry performance

benchmarks are not available in Australia. Specifically, for each year, all the Australian Securities Exchange listed firms were divided according to their respective two-digit SIC industry group for median performance calculation. The acquirer firms were then matched based on the industry of the acquirer at the time of acquisition to their respective industry performance benchmarks for industry-adjusted operating performance calculation. Then, we used the mean difference approach (Healy et al. 1992; Sharma

& Ho 2002) to detect differences in pre- and post-merger operating performances, using two-tailed t-statistics to test for significant differences between pre-and-post merger mean industry-adjusted performance of the acquirers. Furthermore, we employed multivariate regression models, as shown in Equations (1)–(3), to test whether the difference in industry-adjusted post-merger operating performance is related to the merger diversification strategy and ownership structure characteristics. This section of analysis provided further evidence regarding whether acquisitions are economically efficient in the long term and consistent with the proposition of acquisitions generating positive synergy benefit for acquirers. The effects are manifested through improvements in operating cash flow, *ROA* ratio, *ROE* ratio, revenue, and/or cost-saving indicator variables.

Performance = *f*(*Ownership structure*, *Diversification*, *Control Variable*)

$$\begin{aligned} Perf = & \beta_1 Cb_t + \beta_2 Cash_t + \beta_3 Focus_t + \beta_4 Tpublic_t \\ & + \beta_5 Tsize_{t-1} + \beta_6 Asize_{t-1} + \beta_7 Ab/m_{t-1} + \beta_8 Relsize_{t-1} \\ & + \beta_9 BodOwn_{t-1} + \beta_{10} SubsOwn_{t-1} + \beta_{11} InstOwn_{t-1} \\ & + \varepsilon_i \end{aligned} \quad (1)$$

Ownership structure and control variables are determined at the end of the previous financial year to examine the influence of those variables on the acquirer post-merger performance outcomes. Equation (1) intended to test the direct effect of individual ownership structure variables on the long-term performance of acquirers. Meanwhile, Equation (2) incorporated the nonlinear relationship specification for the managerial and outside substantial shareholding variables. However, we did not hypothesise any nonlinear specification for the relationship between institutional ownership and acquirer firm's long-term performance (Henry 2008). The following specification adopted this approach:

$$\begin{aligned} Perf = & \beta_1 Cb_t + \beta_2 Cash_t + \beta_3 Focus_t + \beta_4 Tpublic_t \\ & + \beta_5 Tsize_{t-1} + \beta_6 Asize_{t-1} + \beta_7 Ab/m_{t-1} + \beta_8 Relsize_{t-1} \\ & + \beta_9 BodOwn_{t-1} + \beta_{10} SubsOwn_{t-1} + \beta_{11} InstOwn_{t-1} \\ & + \beta_{12} BodOwn_{t-1}^2 + \beta_{13} SubsOwn_{t-1}^2 + \varepsilon_i \end{aligned} \quad (2)$$

To investigate the interaction effect between type of merger (focus or diversification) and ownership structure on the acquirer firm's long-term performance, this study employed regression equation (3). Moderating effects are less likely to be identified at high levels of managerial ownership or substantial shareholder ownership because of entrenchment effects and less effective monitoring, and so interaction effects are only expected to be present at low ownership levels. As a result, interaction terms incorporating the squared ownership variables were excluded in Equation (3).

$$\begin{aligned} Perf = & \beta_1 Cb_t + \beta_2 Cash_t + \beta_3 Focus_t + \beta_4 Tpublic_t \\ & + \beta_5 Tsize_{t-1} + \beta_6 Asize_{t-1} + \beta_7 Ab/m_{t-1} + \beta_8 Relsize_{t-1} \\ & + \beta_9 BodOwn_{t-1} + \beta_{10} SubsOwn_{t-1} + \beta_{11} InstOwn_{t-1} \\ & + \beta_{12} BodOwn_{t-1}^2 + \beta_{13} SubsOwn_{t-1}^2 \\ & + \beta_{14} Focus_t * BodOwn_{t-1} + \beta_{15} Focus_t * SubsOwn_{t-1} \\ & + \beta_{16} Focus_t * InstOwn_{t-1} + \varepsilon_i \end{aligned} \quad (3)$$

EMPIRICAL RESULTS

The results show that acquirers experienced statistically significant negative performance during the seven-year period surrounding mergers across all industry-adjusted benchmarks (Table 3). However, the performances improved after firms undertook merger activities, as shown by the lower negative results. The acquirer industry's adjusted pre-and post-merger performance differences are 0.037, 0.036 and 0.033 for the *OCF*, *ROA* and *ROE* variables, respectively. The results support the findings of Lau et al. (2008), who reported that the *OCF*, *ROA* and *ROE* of Australian mergers improved based on the same-industry-firm benchmarks. However, these results contrasted with those of Sharma and Ho (2002), who used earlier Australian data, and with those of Rao-Nicholson, Salaber and Cao (2016) in their analysis of ASEAN countries. Further analysis shows that the acquirers achieved significant improvement over the three-year period after mergers. The results for the three-year post-merger compared to the performance during the merger years increase by 0.025 (t-test = 1.671) and 0.079 (t-test = 1.852) according to *OCF* and *ROE*, respectively.

Based on the 36-month multivariate regression results in Table 4, the acquirers that merged with overseas targets did not achieve any significant operating performance changes, except for the cross-border variable in the *ADM* model registering coefficient values of 0.015 (t-test = 4.04). This result indicates that the bidder firm *ADM* ratios are 0.015 higher if they are involved in cross-border acquisitions compared to the *ADM* ratio for firms involved in domestic acquisitions. These results, to a certain extent, support the findings of Dos Santos, Errunza and Miller (2008), in which international diversification does not destroy firm values. The current study did not find any statistical significant changes in Tobin's Q and sales levels of their sample firms.

The results of the Cash variable indicate that the *OCF*, *ROA* and *ROE* ratios of bidder firms are higher if they are involved in cash finance acquisitions compared to firms involved in script finance acquisitions. These results are consistent with findings of positive relationship between cash finance merger and firms' operating performance, such as reported by Lau et al. (2008) for Australian mergers and Healy et al. (1992) for US mergers.

Target Public variable shows significantly negative coefficients with -0.054 (t-test = -2.27), -0.116 (t-test = -2.71) and -0.101 (t-test = -2.73) in the *OCF*, *ROE* and *REV* models, respectively. The results indicate that public target

TABLE 3. Operating performance during the pre- and post-merger period

Year relative to M&A	OCF	ROA	ROE	REV	ADM
-3	-0.242***	-0.104***	-0.103***	0.115***	0.011***
-2	-0.230***	-0.112***	-0.118***	0.136***	0.009***
-1	-0.212***	-0.117***	-0.094***	0.169***	0.010***
0	-0.199***	-0.087***	-0.140***	0.157***	0.008***
1	-0.202***	-0.088***	-0.064***	0.166***	0.009***
2	-0.197***	-0.074***	-0.097***	0.152***	0.011***
3	-0.174***	-0.065***	-0.061***	0.144***	0.008***
Pre	-0.228***	-0.112***	-0.109***	0.141***	0.010***
Post	-0.192***	-0.076***	-0.076***	0.154***	0.009***
Post-pre-difference	0.037***	0.036***	0.033**	0.013	-0.002
Three-year post-merger difference	0.025*	0.022	0.079*	-0.013	0.000

Notes: Industry-adjusted cash flow to total asset (*OCF*): average difference of cash flow to total asset between the acquirer firms and industry median for a given year relative to the acquisition year. Industry-adjusted return-on-assets (*ROA*): average difference in the *ROA* between the acquiring firm and industry median for a given year relative to the acquisition year. Industry-adjusted return-on-equity (*ROE*): average difference in *ROE* between the acquiring firm and industry medians for a given year relative to the acquisition year. Industry-adjusted revenue-to-total assets (*REV*): average difference in the *REV* between the acquiring firm and industry median for a given year relative to the acquisition year. Industry-adjusted selling, general and administrative expense-to-revenue (*ADM*): average difference in the *ADM* between the acquiring firm and industry median for a given year. Post-acquisition: average of industry-adjusted operating performance variables during the post-acquisition period (years +1, +2 and +3). Pre-acquisition: average of industry-adjusted operating performance variables during pre-acquisition period (years -1, -2 and -3). Three-year post-merger difference: difference of operating performance variable between merger year and three-year post-merger performance. t-statistics and significance level are reported for each mean difference. *, ** and *** indicate statistical significance at 10%, 5% and 1% levels, respectively.

acquirers have lower operating performance experience compared to private target acquirers during the three-year period after mergers. However, all Focus merger and Target size coefficients in this regression table are not significant, which suggests that the focus merger or size of target is not an important determinant of the long-term operating performance of acquirers, in contrast to the findings of Liu et al. (2017).

A consistent positive relationship is found between operating performance and acquirer size. The results indicate that the Acquirer size variable registered highly significant coefficients in the *OCF*, *ROA*, *ROE* and *ADM* models, with unit changes in the size-increasing performance by 3.8, 4.1 and 8.7 percent, and lowering the cost ratio by 0.5 percent, respectively. The relationship between operating performance and acquirers' book-to-market value is inconsistent. The results show a unit change in acquirer B/M increasing in *ROA* and *ROE* by 2.7 and 6.5 percent, respectively, but lowering the revenue by 4.6 percent.

The variable representing the relative size between target and acquirer firms does not show any significant influence on operating performance, except in the *ADM* model, as supported by the variable coefficients of -0.001 (t-test -1.98). Here, the firms experience a marginal positive effect of target size. Hence, the bigger the target firms, the lower the operating costs for acquirers.

The *BodOwn* variable indicates significantly positive coefficients in the *OCF*, *ROA* and *REV* models. The higher the managerial ownership in the acquirer company, the better the post-merger performance. However, none of the *BodOwn* squared term models shows significant results.

This finding is not necessarily surprising as previous literature failed to provide evidence of a linear or nonlinear relationship between managerial ownership and merger firm performance, such as Loderer and Martin (1997) and Duggal and Millar (1999). Support can be potentially extended to the findings of Denis, Denis and Sarin (1997); Craswell, Taylor and Saywell (1997); Demsetz and Villalonga (2001); and Mak and Li (2001), all of whom did not provide statistical evidence of linear or nonlinear relationships between managerial ownership and wider firm value measures. This finding, however, contrasted with the findings of Morck, et al. (1988), McConnell and Servaes (1990) and Henry (2008). These studies reported significant relationships between managerial ownership and wider firm value measures.

The *SubsOwn* variable produces positive coefficients but is not statistically significant. Higher levels of substantial ownership, as indicated by the squared term for the *SubsOwn* variable, show the statistically significant influence on *OCF* as indicated by the coefficient values of -0.419 in the three-year post-merger performance. This result indicates that, at higher levels of substantial ownership at more than 29.12 percent, acquirers experience adverse operating cash flow effects. This finding can be interpreted as the acquirer firms' value first increasing when shareholdings by blockholders increase. This situation aligns the interests of shareholders and blockholders to focus on maximising acquisition and wider firm value. However, firm value declines as substantial shareholder ownership exceeds the optimal level, representing a manifestation of agency problems (Demsetz 1983; Fama & Jensen 1983) and entrenchment effects

TABLE 4. Multivariate regressions of post-merger operating performance

	OCF			ROA			ROE			REV			ADM		
	Eq 1	Eq 3	Eq 1	Eq 3	Eq 1	Eq 3	Eq 1	Eq 3	Eq 1	Eq 3	Eq 1	Eq 3	Eq 1	Eq 3	
Cross border	-0.042	-0.045	-0.019	-0.020	-0.035	-0.037	-0.05	-0.051	0.015***	0.015***	0.015***	0.015***	0.015***	0.015***	
Cash	0.062***	0.062***	0.074***	0.074***	0.105**	0.106**	0.062	0.062	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	
Focus	-0.009	-0.064	0.067***	0.080	0.09**	0.091	0.09**	0.051	-0.004	-0.004	-0.004	-0.005	-0.004	-0.005	
Target public	-0.067***	-0.064***	-0.028	-0.028	-0.079*	-0.078*	-0.069*	-0.067*	0.001	0.001	0.001	0.001	0.001	0.001	
Target TA	0.008	0.008	0.005	0.005	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.001	
Acquirer TA	0.038***	0.038***	0.042***	0.041***	0.089***	0.087***	0.015	0.014	-0.005***	-0.005***	-0.001***	-0.001***	-0.001***	-0.001***	
Acquirer B/M	-0.016	-0.016	0.028**	0.027*	0.065**	0.065**	-0.047*	-0.046*	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	
Relative size	0.001	0.001	0.001	-0.001	0.003	0.003	-0.003	-0.003	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	
BodOwn	0.221***	0.006	0.109*	-0.001	0.075	0.106	0.191*	-0.019	-0.01	-0.01	0.011	0.011	0.011	0.011	
SubsOwn	0.074	0.244	0.032	0.099	-0.041	0.166	0.02	-0.109	-0.001	-0.001	0.002	0.002	-0.001	0.002	
InstOwn	0.042	0.034	0.009	0.050	-0.183	0.014	-0.174	-0.244	0.008	0.008	0.012	0.012	0.008	0.012	
BodOwnsq		0.254		0.210		-0.048		0.326			-0.038	-0.038		-0.038	
SubsOwnsq		-0.419*		-0.134		-0.517		0.075			-0.009	-0.009		-0.009	
Focus*BodOwn		0.122		-0.043		0.004		0.005			0.005	0.005		0.005	
Focus*SubsOwn		0.163		0.024		0.208		0.143			0.005	0.005		0.005	
Focus*InstOwn		0.047		-0.078		-0.299		0.103			-0.004	-0.004		-0.004	
Constant	-0.714***	-0.695***	-0.679***	-0.675***	-1.156***	-1.180***	-0.059	-0.007	0.065***	0.065***	0.062***	0.062***	0.065***	0.062***	
Adj. R ²	0.13	0.131	0.154	0.151	0.123	0.122	0.019	0.015	0.084	0.084	0.081	0.081	0.084	0.081	

*** p < 0.01; ** p < 0.05; * p < 0.10 two tailed

(Morck et al. 1988). Expropriation and self-serving merger motives from these shareholders likewise surpassed any monitoring or synergy-creation benefits associated with mergers. This finding supports Yen and André (2007) who observed a nonlinear relationship between concentrated ownership and the level of post-merger operating cash flow among firms in English-origin countries.

Similarly, no substantial evidence is found to support a relationship between institutional investors and acquirer market performance from 1997 to 2009, as the *InstOwn* coefficient is not significantly related to the calculated acquirer abnormal returns using the *OCF*, *ROA*, *ROE*, *REV* and *ADM* benchmarks. The findings support the non-significant influence of Australian financial institutions on firm performance as observed by Craswell et al. (1997). However, the findings contrast with those by Duggal and Miller (1999), who reported that the positive relation between bidder gains and institutional ownership and with the wider firm performance/value literature, such as McConnell and Servaes (1990), Short and Keasey (1997), Han and Suk (1998) and Henry (2008).

The present study fails to find any significant interaction effect between the ownership structure variables and acquirer firm performance over the three-year post-merger horizon, an outcome that suggests an absence of complementary or substituting effects to the long-term post-merger performance. The explanatory power of the operating performance regression models is highest with adjusted R² values of 15.10 percent in explaining the variability of *ROA*. The lowest adjusted R² values are 1.5 percent in the model explaining *REV*.

CONCLUSION

The long-term performance analysis shows consistently less negative performance during the seven-year period surrounding merger announcements. A possible explanation for this result is that the integration costs involved exceed the synergistic gains from M&A or, as a result of hubris, as discussed by Roll (1986), Jensen (1986) and Lang, Stulz and Walkling (1991).

BodOwn indicates significantly positive coefficients. However, *SubsOwn* and *InstOwn* variables reveal no observable significant influence on the *OCF*, *ROA*, *ROE* and *REV*. No indication is found of a nonlinear relationship between the ownership structure and operating performance variables, except for the squared term of *SubsOwn* coefficient (*SubsOwnsq*). Nonetheless, evidence of a nonlinear relationship between substantial shareholder ownership and performance is consistent with a negative relationship at higher substantial shareholder ownership levels. However, no evidence of interaction effects is observed between the ownership structure variables and acquirer firm's long-term post-merger performances. The limitation of this study is that the selected years of M&A activity ignore external shocks, such as an economic or financial crisis that might influence firm performance. Therefore, this study does not capture the influence of

ownership structure during economic or financial crisis. Future research is recommended to examine specifically the influence of ownership structure on M&A long-term post-merger performance.

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