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Competition in the Acquisition Market and Returns to Bidders in Australia

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Abstract

This study investigates the impact of takeover market competition on the short-run market performance of Australian acquirers. While the market for corporate control predicts a positive association between takeover market competition and acquirers' announcement period returns, the winner's curse hypothesis predicts a negative relationship. Using six alternative proxies to capture acquisitions market competition, I find that takeover market competition has a significant negative influence on acquirers' announcement period returns. However, this effect is more pronounced among private target acquirers, large acquirers and stock-financed acquisitions. The findings further reveal that large bidders acquiring private targets through stock-financed acquisitions are the most penalised group in the capital market in a competitive acquisitions market. Additionally, evidence is found which suggests that competition-induced bids are associated with significantly higher bid premiums and experience negative post-acquisition performance. The findings remain robust to the implementation of alterations to several methodological concerns, the issue of endogeneity and sample selection variations.

Keywords

Acquisitions; Takeover market competition; Private target acquirers, Public target acquirers; Cumulative abnormal return; Size effect

Competition in the Acquisition Market and Returns to Bidders in Australia

1. Introduction

Australia has an active and competitive takeover market. In 2010, Australia attained the third rank in global merger and acquisition (M&A) activities by recording a total deal

value of US$132 billion and capturing 5.4% of the worldwide market share.[1] According to Austrade publications and the *Financial Services Benchmark Report*, Australia has maintained the top rank in the Asia-Pacific region during the period 2006–2010 for the volume of M&A deals announced.[2] In 2015, the total deal value recorded by the Australian M&A market amounted to A$134.9 billion, compared to A$76.4 billion in 2014, thereby reflecting a 76% increase in one year. Despite the 4% drop in global M&A volume in 2016, the Australian M&A market remained strong, reporting a 12% increase in M&A volume. The conducive economic environment created by modest economic growth, low interest rates, low stock prices offered by many industrial sectors, low inflation and relatively weak currency, together with growth opportunities offered by mid-market-cap companies, have made Australia an appealing destination for acquisitions for both domestic and foreign bidders. The 2016 M&A report from Herbert Smith Freehills found a significant rebound in the level of takeover competition in Australia in recent years, reporting a marked increase in the number of multiple-bidder-contested takeover bids.

The Australian M&A market is under the scrutiny of several regulatory bodies (e.g. the Australian Stock Exchange, the Australian Securities and Investments Commission, and the Australian Competition and Consumer Commission and Takeover Panel) to ensure and facilitate an effective market for corporate control and to act directly and indirectly to protect shareholders' rights. From the perspective of a market for corporate control, a competitive acquisitions market offers solutions to conceptual problems associated with the separation of ownership and control, while assuring efficient resources allocation within the economy (Ruback, 1983). The argument follows that, in the presence of a takeover threat created by a competitive takeover market and market monitoring, bidders are incentivised to make acquisition decisions for the benefit of their shareholders. Large synergy benefits are by far the most common justification provided by acquirers in paying a premium to prospective targets (Berk and DeMarzo, 2011, p. 894). Therefore, an acquisition should result in an enhancement of shareholders' wealth

[1] For details see: http://www.austrade.gov.au/Invest/Reports-Resources/Benchmark-Report.

[2] See: http://www.austrade.gov.au/Invest/Investor-Updates/Data-Alert-080812/default.aspx (source: Thomson Reuters) and *Financial Services Benchmark Report 2010.*

for the bidders and, in turn, a positive response from market participants. If this phenomenon holds, competition in the acquisitions market should have a positive association with the announcement period abnormal returns earned by acquirers.

An opposing view is presented by the winner's curse hypothesis. According to this argument, the winning bidder is cursed by the competition in the acquisitions market and ends up paying more than the value of the target, thereby converting an acquisition into a negative net present value (NPV) decision (Roll, 1986; Fishman, 1988; Boone and Mulherin, 2008). According to this hypothesis, a negative relationship should exist between takeover competition and announcement period abnormal returns of acquirers.

Many studies have examined the impact of takeover competition using the number of publicly contested multiple bidders as the variable of interest. For example, Bradley et al. (1988), in their investigation of the magnitude of synergy gains earned by bidding and target firms in tender offers, found that multiple bidder contests increased the announcement period returns earned by target shareholders by a significant margin, while having no significant impact on returns to acquirer shareholders. This finding has been corroborated by Franks and Harris (1989) who investigated the effects on shareholder wealth of United Kingdom (UK) takeovers. Servaes (1991) analysed the influence of Tobin's Q on takeover gains and revealed that targets earned 17% higher abnormal returns when more than one bidder entered the contest; however, bidders' returns were not associated with multiple bids. Mørck et al. (1990) analysed the influence of managerial attributes (those attributes that influence the propensity to overpay in acquisitions) on bidder returns. They found that the coefficient for the multiple bidder dummy generated a significant negative value, concluding that entry by additional bidders reduced the winning bidder's market value by 10 cents on each dollar (US$) paid for the target. The Australian studies of Humphery-Jenner and Powell (2011) and Shams et al. (2013) found that competed bids (i.e. acquisitions with multiple bidders) have no significant influence on announcement period abnormal returns earned by acquirers. The evidence therefore remains inconclusive as to whether takeover competition has an impact on acquirers' returns.

The inconsistent findings of studies that used the number of publicly announced bidders for an acquisition as the measure of takeover competition have led Varaiya (1988) and Moeller et al. (2004) to claim that this variable is a noisy measure of competition. Moeller et al. (2004) identified two main weaknesses associated with this measure. Firstly, as shown by Boone and Mulherin (2002), competition between many rival firms could take place privately, making publicly announced multiple bids an incomplete measure of takeover competition. Secondly, as postulated by Fishman (1988), an acquirer might offer a high premium pre-emptive bid to deter the competition posed by other potential bidders; therefore, the absence of multiple bids could be interpreted as an outcome of the intense competition prevailing in the takeover market.

The objective of this study is to examine whether a relationship exists between competition in the takeover market and the announcement period abnormal returns earned by Australian acquirers. To this end, rather than depending on an incomplete measure, such as the number of publicly announced multiple bids, I use six novel measures to capture the takeover intensity in the overall market: (i) total deal value of acquisition bids announced in a given month; (ii) total number of acquisition bids announced in a given month; (iii) total number of successful acquisition bids executed in a given month; (iv) total deal value of successful acquisition bids executed in a given month; (v) total number of failed acquisition bids announced in a given month; and (vi) total deal value of failed acquisition bids announced in a given month. I also extend the analyses to examine whether competition in the acquisitions market can explain some well-known empirical findings in the M&A literature, namely, differential market reactions to: (i) public versus private target acquisitions; (ii) bids offered by large versus small acquirers; and (iii) stock-financed versus cash-financed acquisitions. I find evidence that the takeover market competition has a significant negative association with the announcement period abnormal returns earned by Australian acquirers. However, examination of the influence of the organisational form of the target reveals that the higher level of competition for acquisitions of private targets is negatively associated with announcement period abnormal returns for their acquirers, while having an insignificant influence on public target acquirers. This finding is of interest in the context of the available evidence which

indicates that private target acquirers earn significantly higher returns than acquirers of public targets. I attribute this finding to possible overconfidence displayed by acquiring managers in an environment where information is lacking on how to value a private target and where public target acquirers are under intense scrutiny by disciplinary forces in the capital market. The size analyses reveal that takeover market competition has a significant negative influence on returns earned by large acquirers while having no significant influence on small acquirers. The reason may be that large acquirers acquire more private targets while small acquirers bid more for public targets. Takeover market competition has a significant negative influence on the abnormal returns of acquirers that use stock as the method of payment while having no influence on those that use cash to settle deals. This finding reveals the market's negative assessment when acquirers use overvalued stock to finance acquisition deals.

This study also sheds light on the degree of competitiveness of the Australian takeover market compared to that of other key takeover markets such as the United States (USA), the UK and Japan. Faff et al. (2019) explained that, from 1993 onwards, the Australian takeover market displayed a similar trend of competitiveness compared to the US and Japan. The Australian takeover market maintains a high level of competitiveness (proxied by the total number of public target acquisitions in a given year scaled by the total number of listed companies) in the Asia-Pacific region. Australia is a major M&A player in the Asia-Pacific region and, due to its rule of law practised within a strong regulatory framework, has beaten its regional counterpart Japan. Resilient economic conditions, a strategic business location, increased global trade, investment ties, sound governance and political stability continue to position Australia as an attractive investment destination.[3] These factors increase the potential takeover competition in this market. Therefore, it is important to examine whether shareholders might gain from acquisitions in a competitive takeover market.

[3] For details, see https://www.austrade.gov.au/international/invest/investor-updates/2018/australia-remained-in-the-top-ten-global-destinations-for-fdi-in-2017

This paper offers several contributions. Firstly, it reports on the first study to investigate the direct link between competition in the takeover market and market reaction to acquisition announcements using data for the Australian market. This is an interesting addition to the existing literature as the composition of the Australian market and, therefore, the takeover market competition, is somewhat different from that of other markets. Secondly, six alternative takeover market competition measures are used that capture the intensity of acquisition activities, rather than depending on a weak measure, such as publicly announced multiple bids contesting for a target. Thirdly, a new perspective is introduced by investigating the influence of the organisational form of the target, the acquirer's size and the method of payment on the relationship between takeover market competition and acquirer returns, which has not been analysed in prior studies. The findings of the current study therefore shed some light on why prior studies have found differing abnormal returns across acquisitions of public versus private targets, acquisitions executed by large versus small firms and those financed with stocks versus those paid with cash. Finally, the study's findings would be useful to regulators, policy makers and company managers as they reveal how investors differentiate value-creating acquisitions from those that do not enhance value in a competitive takeover market.

The remainder of the paper is organised as follows: Section 2 discusses the relevant literature and the development of hypotheses. Section 3 presents the sample selection procedure, defines competition variables used in the analyses and presents the data used in the study. Section 4 outlines the methodology. Section 5 discusses the findings while Section 6 analyses the sensitivity of the results to some robustness tests. The last section (Section 7) concludes the paper.

2. Literature review and hypotheses development

Two theoretical arguments have been proposed in the M&A literature to justify the mixed empirical evidence uncovered in relation to the influence of takeover market competition and the announcement period returns earned by acquirers. Firstly, according to the theory of the market for corporate control, a competitive takeover market provides a strong sense of market discipline for managers of publicly held companies as, in such a competitive

market, managerial teams compete with each other for the right to manage corporate resources (Jensen and Ruback, 1983; Macey, 2002). According to Manne (1965), the fundamental premise underlying the market for corporate control is the existence of a strong relationship between corporate managerial efficiency and the market price of shares of the company that they manage. Takeovers are considered as one of the main sources of market discipline for public companies. Managers of bidding firms must bear the high cost of making inefficient acquisition decisions in a competitive market as these firms could become the next potential targets for the use of corporate resources on value-destroying acquisitions. In this context, Ruback (1983) claimed that competitive takeover markets align managerial objectives with those of investors. Accordingly, bidding managers are expected to make positive NPV decisions, including acquisitions that are rewarded by the capital market with positive returns. This argument has been justified on the basis of early empirical evidence that, when an acquisition deal is announced, the target shareholders gain and the bidder shareholders do not lose, resulting in an increase in value of the combined firm (see, e.g. Bradley et al., 1988; Franks and Harris, 1989; Servaes, 1991). Healey et al. (1992) investigated the long-run performance of merged firms, finding that firms in their sample reported a significant improvement in cash flow returns following acquisitions. Therefore, based on these findings, the takeover market competition should have a positive influence on the announcement period returns earned by acquirers.

Secondly, the 'winner's curse' hypothesis has been proposed to justify the significant negative relationship discovered between acquirers' abnormal returns and takeover market competition. This theory postulates that the winning bidder is cursed by competition in the acquisitions market and ends up paying a premium that exceeds the present value of the benefits of synergy associated with the acquisition. When bidding managers are infected by hubris and overconfidence, they could offer high premium pre-emptive bids to targets in order to deter their competitors, thereby converting an acquisition into a negative NPV decision (Roll, 1986; Fishman, 1988; Boone and Mulherin, 2008). Boon and Mulherin (2008) argued that managers of winning bidders who fall prey to the winner's curse may fail to adapt their strategies to the level of

competition in the takeover market and, consequently, overbid for a target. This prediction is also consistent with the argument of Fishman (1988) and Khanna (1997) that the first bidder needs to bid pre-emptively by offering a high premium bid to the potential target, thereby deterring potential competing bidders. Potential competition therefore should have a negative association with announcement period abnormal returns earned by acquirers. Indeed, several studies have found a negative association between takeover market competition and acquirers' returns (see Mørck et al., 1990; Moeller et al., 2004; Banerjee et al., 2014; James and Wier, 1987).

Owing to the contrasting evidence reported in previous studies in relation to the association between takeover market competition and acquirers' returns, in the current study, I intend to test the following hypothesis:

H1: There is no association between potential competition in the takeover market and the announcement period abnormal returns earned by acquirers.

Studies indicate a near-unanimous agreement that acquirers of private targets earn significantly higher abnormal returns than acquirers of public targets. This evidence has been revealed across several markets, such as: the USA (Hansen and Lott, 1996; Chang, 1998; Ang and Kohers, 2001; Fuller et al., 2002; Moeller et al., 2004; Capron and Shen, 2007; Officer, 2007); the UK (Draper and Paudyal, 2006; Faccio et al., 2006); and Australia (da Silva Rosa et al., 2004; Shams et al., 2013). However, empirical investigation has not been conducted on whether the acquirers of these two types of targets operate under different competitive environments and, if so, whether takeover market competition has any influence on announcement period abnormal returns of these two groups. The acquisitions of public targets are often subject to substantial media attention/press coverage (Starks and Wei, 2004) and they take a long time to complete, particularly in a highly regulated environment such as Australia, thus allowing other potential bidders to gather information on the deal and to enter into the competition. In this setting, as direct and indirect costs associated with the revision and resubmission of bids (e.g. fees paid to investment bankers/consultants and loss of executives' time) can be substantial, bidders may be compelled to make high threshold offers to public targets.

If this environment is coupled with managerial hubris (Roll, 1986) and management pursuance of personal objectives (Mørck et al., 1990; Datta et al., 1992; DeLong, 2001), acquirers could overpay when acquiring public targets, thus imparting a negative relationship between competition in the takeover market and returns earned by acquirers of public targets. A counter-argument is that acquisitions of public targets are subjected to the scrutiny of capital markets as they are followed by investment analysts and institutional investors (Starks and Wei, 2004) and, therefore, managers are disciplined by capital markets. These acquisitions are large investment decisions that warrant careful evaluation of the associated synergies by the acquiring managers as failure of these acquisitions could threaten the survival of the acquiring firms and their managers. Therefore, potential takeover market competition should have a positive association with announcement period abnormal returns of the acquirers of public targets.

The acquisitions market for private companies can be less competitive for several reasons. Firstly, as Zingales (1995) contended, acquirers of private firms encounter a different bargaining situation compared to acquirers of public targets. The 'free-rider' problem, identified by Grossman and Hart (1980), can be absent in acquisitions of private targets as acquirers provide a liquidity service to owners who may be looking to sell their business entities, either to exit the market or to raise funds (Moeller et al., 2004). Secondly, many illiquid private companies are available to purchase in any economy. For example, in June 2014, in Australia, of the 2.10 million businesses in operation, 99.99% were private firms (Australian Bureau of Statistics [ABS]). This large pool of private firms provides bidders with a diverse menu of investment opportunities.[4] Thirdly, private companies are less well known and therefore would not attract the investment community's attention to the same extent as that experienced by public targets. The negotiations of these deals can be undertaken privately between bidding managers and the owners of private targets, with information on these deals not available to other potential bidders. Therefore, one could expect bids for private targets to be not necessarily induced by competition in the takeover market and, consequently, to show no association between

[4] James and Wier's (1987) finding that the number of alternative targets has a positive and significant influence on acquirers' announcement period abnormal returns provides supportive evidence for this view.

takeover market competition and returns to acquirers of private targets. However, private target acquisitions suffer from a significant degree of information asymmetry, with the valuation of private targets extremely difficult, not only because price reference points are non-existent for private firms, but also because financial statement information is not available for many private companies.[5] The acquisition of private targets can be associated with a wider range of valuation errors on the part of bidders as less public information is available from which to derive their values, making acquisitions of private targets risky exercises (Easley and O'Hara, 2004). The information search cost can be substantially higher for private targets owing to the scarcity of publicly available information (Chang, 1998). It is highly likely that these deals are privately negotiated, with the outcome of this type of deal not known to the market until the deal is finalised. This situation allows managerial hubris and the pursuing of personal objectives to play a substantial role in these acquisitions. In this context, any level of takeover market competition faced by the acquirers would motivate them to overbid for these private targets, thus imparting a negative association between acquirers' returns and takeover market competition.

Considering the contrasting views outlined above, I propose to test the following hypothesis:

H2: The relationship between competition in the takeover market and acquirers' abnormal returns is conditional on whether the target is a public entity or a private firm.

It has been well documented in the literature that a negative association exists between acquirers' size and their announcement period abnormal returns (Shams et al., 2013; Uysal et al., 2008; Moeller et al., 2004; Krasker, 1986). For example, in a US study by Moeller et al. (2004), the authors found that large acquirers earned an insignificant equally weighted abnormal return of 0.08% while small acquirers realised a significant abnormal return of 2.32% during the announcement period. Humphery-Jenner and Powell's (2011) Australian study found that large acquirers realised a significant equally

[5] This is particularly relevant to Australia. Compared to the UK environment where private companies must submit audited financial statements prepared under the prevailing accounting standards (Ball and Shivakumar, 2005), Australian private companies are not required to submit audited financial statements and, therefore, publicly available information is virtually non-existent for privately held firms.

weighted abnormal return of between 0.56% and 1.08% (depending on how the sample was split into large and small groupings) while small acquirers earned a significant abnormal return of between 3.13% and 9.46%. Typically, the negative association between the size of the acquirer and announcement period abnormal returns has been justified on the basis that managers of large firms are more prone to hubris and their decisions can be driven by the objective of accumulating power and prestige rather than creating value for their investors (Mahoney, 1979; Agarwal, 1981; Jensen, 1986; Roll, 1986; Kostiuk, 1990; Harford et al., 2012). Justifying the above claim, Moeller et al.'s (2004) study found that large firms pay significantly higher premiums to targets than was the case for small firms.

What has not been investigated empirically in the takeover literature is whether a difference exists in the takeover market competition encountered by large and small acquirers and, if so, whether this difference has an impact on announcement period abnormal returns of acquirers. The takeover market competition faced by these two types of acquirers can be different for several reasons. Large acquirers may face greater competition from fellow large firms as the acquisition attempt of a large firm is associated with greater publicity, and large potential competitors typically have more financial resources at their disposal and easy access to capital markets. An alternative view is that large acquirers acquire large targets that necessitate the investment of a significant amount of corporate resources (Moeller et al., 2004; Masulis et al., 2007) and, therefore, large acquirers may not face stiff competition from fellow competitors to the same extent experienced by small acquirers.[6]

The acquisition of small firms, in particular, small private firms, by small public bidders may not necessarily attract fellow competitors. Very small privately held firms may become easy targets to acquirers simply because they find it difficult to operate independently in a competitive economy due to their lack of resources and their inability to raise capital at competitive rates to finance growth opportunities (Shams and

[6] This aspect is particularly relevant to Australia as the Australian market is characterised by the existence of a small number of large companies and a large number of small companies.

Gunasekarage, 2016). Therefore, these acquisitions may not be related to competition in the acquisitions market. In addition, small acquirers generally pay for acquisitions with cash (Moeller et al., 2004), making it hard for cash-strapped fellow small firms to become strong competitors.

On the basis of this evidence, I propose the following hypothesis:

H3: The relationship between competition in the takeover market and acquirers' abnormal returns is conditional on whether the acquirer is a large firm or a small firm.

Several studies have reported that cash-financed bids generate positive abnormal returns to acquirers while their equity financed counterparts generate negative abnormal returns (for evidence, see Travlos, 1987; Franks et al., 1991; Walker, 2000; Andrade et al., 2001). Fishman (1988) argued that acquirers use cash as the method of payment to signal high private valuation of the target and thereby deter potential bidders; competition-induced cash bids can thus be seen as value-creating decisions by the capital market. Nevertheless, acquirers could provide a liquidity service through cash deals to owners of target firms who may be looking to sell their stake to exit the market (Moeller et al., 2004), which would mean that making cash bids would have no association with takeover market competition. According to Shleifer and Vishny (2003), highly active M&A markets (M&A waves) are a result of high market valuations experienced by prospective acquirers. Given the ability that managers possess to exploit information disparity between investors and themselves, in a competitive takeover market, managers of overvalued firms could use their overvalued equity to engage in stock-financed acquisitions. Shleifer and Vishny (2003) contended that such acquirers underperform in the long run after the completion of equity financed acquisitions. It is also possible that, when confronted with competition in the takeover market, hubris-infected managers could overpay for a target, making the acquisition a negative NPV decision. Therefore, a negative association between takeover market competition and acquirers' returns can be expected for stock-financed acquisitions. Given these arguments, I propose the following hypothesis:

H4: The relationship between competition in the takeover market and acquirers' abnormal returns is conditional on the method of payment used to finance an acquisition.

3. Sample characteristics, definitions of competition variables and the data

3.1. Sample characteristics

In this study, I used the Thomson Reuters SDC Platinum Mergers and Acquisitions database (hereafter SDC Platinum database) to search for announcements of domestic acquisitions by listed Australian bidders that acquired public and private targets during the 25-year period from January 1993–December 2017. This search resulted in an initial sample of 15,228 acquisition deals announced by publicly listed bidders. From this initial sample, I dropped 6,947 subsidiary and joint venture targets, leaving only acquisitions of public and private targets. I next excluded 4,037 announcements due to the non-availability of accounting data and 1,340 announcements due to non-availability of bid characteristics and share price data. This screening process resulted in a final sample of 2,904 acquisition announcements. Of these deals, 519 were announced by acquirers of public targets while 2,385 were announced by acquirers of private targets. Using median market capitalisation as the cut-off, the study identified that 1,452 deals were offered by large bidders (above the median A$172.88 million) while 1,452 deals (below the median A$172.88 million) were undertaken by small bidders. In terms of the classification of the method of payment, 697 were cash-only bids while 483 were stock-only bids.

Table 1, Panel A, provides a year-by-year distribution of the final sample. Even though the Australian acquisitions market was stagnant prior to 2001, an increase in annual acquisition activities can be observed during the five years from 2003–2007. The acquisitions market was very active during the years immediately prior to and during the Global Financial Crisis (GFC) (i.e. from 2008–2009). The number of acquisitions that occurred during the post-GFC years was similar to those that happened during the pre-GFC years. Table 1, Panel B, reveals that the following industries: financials, industrials, consumer services, basic materials and technology remained the top five industries from

which Australian acquirers came: these five industries accounted for more than 80% of acquisitions in Australia.

Data relating to the acquiring firm characteristics and bid characteristics were collected from the Datastream database and the SDC Platinum database, respectively: the descriptive statistics for these variables are reported in Table 2.[7] As shown in Panel A, an average bidder has a market capitalisation of A$1,249.75 million with a debt-to-assets ratio of 20%. As reflected by the return on assets (ROA) figure, an average acquirer is a profit-making entity (1.71%). Panel B reveals that, for the method of payment, non-cash sources are preferred by acquirers to the cash payment method. With these particular acquisitions, acquirers gained outright control of their respective targets by acquiring more than 94% of the targets' outstanding equity (Panel C). The minor differences between equity ownership after the acquisition and the percentage of shares acquired imply that acquirers have had a significant ownership stake in the respective targets prior to these particular acquisitions. In Panel D, the price offered to the target in a typical deal is A$66.37 million, with this deal accounting for less than one-twentieth of the acquirer's market value. Only 10.23% of these deals are classified as tender offers (takeover bid dummy) and unrelated acquisitions (69%). The mean of cumulative abnormal returns (CARs) earned by an acquirer during the announcement period is 0.26% (Panel E).

3.2. Definitions of competition variables

To avoid any ambiguity in the measurement of competition in the acquisitions market and to capture competitiveness in the overall takeover market, the following six competition measures have been used in the current study:

1. Number of monthly acquisition bids (*NUMACQ*): This is the total number of acquisition bids announced by publicly listed bidders for all target firms in a given month, as reported by the SDC Platinum database.

[7] I winsorised all variables used in the models at 1% and 99% except for return on assets (ROA) for which I used a 10% and 90% cut-off due to large outliers.

2. Deal value of monthly acquisition deals (*DEALVAL*): This is the sum of the deal values of all deals announced by publicly listed bidders for all target firms in a given month, as reported by the SDC Platinum database.
3. Number of monthly successful acquisition bids (*NUMSUCACQ*): This is the number of acquisition deals successfully executed by publicly listed bidders for all target firms in a given month, as reported by the SDC Platinum database.
4. Deal value of monthly successful acquisition deals (*SUCDEALVAL*): This is the sum of deal values of all successful deals executed by publicly listed bidders for all target firms in a given month, as reported by the SDC Platinum database.
5. Number of monthly failed acquisition bids (*NUMFAILACQ*): This is the number of failed acquisition bids announced by publicly listed bidders for all target firms in a given month, as reported by the SDC Platinum database.
6. Deal value of monthly failed acquisitions (*FAILDEALVAL*): This is the sum of the deal values of failed bids announced by publicly listed bidders for all target firms in a given month, as reported by the SDC Platinum database.[8]

The above proxies are designed to overcome the potential noise of the takeover competition measures used in prior studies. Firstly, the competition measures calculated in this study account for all announced bids in the market to capture the overall takeover market competition, whereas prior studies considered all publicly announced contested bids for a particular takeover. The proxies, as calculated in this study, capture the overall takeover market competition rather than the competition for a particular target. Secondly, as they use a rough estimate of the number and dollar values of the announced bids, these proxies overcome the assumption of earlier studies that a high pre-emptive bid is an indication of intense competition as it deters potential bidders.

[8] Variables similar to *NUMACQ* and *DEALVAL* have been used in prior studies as suitable alternatives that capture takeover market competition better than publicly announced bids (see Moeller et al., 2004; Banerjee et al., 2014). The third and fourth measures capture the possible takeover market competition posed by experienced bidders who have been successful in acquiring targets in the past. The last two measures account for the potential takeover market competition coming from past unsuccessful bidders who may have already organised the necessary financing and are therefore seeking prospective targets. The natural logarithms of these competition measures are used in the current study's analyses.

Table 3, Panel A reports the descriptive statistics for these competition measures. As this panel reveals, on average, 51 acquisition bids were announced in a given month during the sample period: the number of announced deals ranged between a minimum of 50 and a maximum of 64.[9] On average, 38 of these deals were completed successfully, while 15 were unsuccessful. The total value of deals announced in a given month ranged from A$2,941 million to A$6,001 million with a mean (median) value of A$5,249 million (A$10,135 million). Successful deals were typically larger deals: they had a monthly mean value of A$3,516 million compared to the mean value of A$1,764.29 million for unsuccessful deals.

In Table 3, Panel B, the study reports the mean and median values of 3-day cumulative abnormal returns (CARs) for public versus private targets, large versus small bidders and cash versus stock payment methods. The descriptive statistics show that the mean 3-day cumulative abnormal returns (CARs) are higher (lower) for private (public) targets, small bidders (large bidders) and cash-financed (stock-financed) acquisitions. The *t*-test and Wilcoxon signed-rank test show statistically significant differences for public versus private target groups, large versus small bidders' groups and cash-only versus stock-only groups.

Table 3, Panel C presents the correlation matrix using the natural logarithm transformations of these variables. The matrix confirms the strong positive correlations among all these competition measures ranging from 57.81% to 95.96%, except for the logarithm of the failed deal measures (*LOGFAILDEALVAL* and *LOGNUMFAILACQ*). The correlation implies that the alternative competition measures used in this study are good substitutes to represent competition in the Australian acquisitions market.

3.3. Other data

The following additional variables were used in this study: stock returns, market return, relative size of the acquisition, acquirer's size, debt-to-assets ratio, cash holdings to assets

[9] I compute six competition measures using 15,228 announcements made by publicly listed bidders for all target firms during the sample period. However, I analyse only 2,904 acquisition announcements of public and private targets due to the non-availability of accounting, share price and bid characteristics information.

ratio, Tobin's Q, return on assets (ROA), method of payment, relatedness, tender offers, acquisitions experience and serial bidder status. The accounting and financial data needed to form these variables were collected from the Datastream database while information relating to the characteristics of acquisitions were gathered from the SDC Platinum database. The definitions of all variables used in the study are provided in Appendix A.

4. Methodology

In this study, I employ conventional event study methodology (Brown and Warner, 1985) and calculate the cumulative abnormal return (CAR) earned by an acquirer over a 3-day event window (from t = -1 to t = +1) surrounding the announcement day (t = 0) to examine the market response to the acquisition announcement.[10] The announcement dates for the 910 acquisition events are collected from the SDC Platinum database: the announcement date is the date on which the acquisition bid is announced by the successful acquirer and is recorded as the first public disclosure date by the database. The announcement period cumulative abnormal return ($CAR_{i,\,(-1\ to\ +1)}$) for an acquirer is calculated as follows:

$$CAR_{i,(-1\,to+1)} = \sum_{t=-1}^{t=+1} \left\{R_{i,t} - \left[\propto_i + \beta_i\left(R_{m,t}\right)\right]\right\} \qquad (1)$$

where $R_{i,t}$ is the return for acquirer i on day t and $R_{m,t}$ is the return for the market on day t. I use the return on the Australian Securities Exchange (ASX) All Ordinaries Index as the market return. The firm-specific $\propto_i$ and β_i parameters are estimated using daily returns for the acquirer i and for the market for a 120-day estimation period spanning from t = -140 to t = -20 where day 0 is the announcement day.[11] I exclude the 20 days immediately prior to the acquisition announcement from the estimation period as it is common in acquisition events that the information is leaked to the capital market well before the actual announcement.

[10] The current study's event period is consistent with the event windows of the Australian study of Humphery-Jenner and Powell (2011) and the US study of Moeller et al. (2004). I also tested alternative windows such as a 5-day event window with the results remaining insensitive to the choice of event window.

[11] The length of the current study's estimation period is equal to that employed in several prior studies including Chang (1998), Moeller et al. (2004), Masulis et al. (2007) and Humphery-Jenner and Powell (2011).

To understand the primary relationship between market response to acquisition announcements and competition in the acquisitions market, I estimate the following regression model:

$$CAR_{i,(t-1\ to\ t+1)} = \gamma_0 + \gamma_1\left(Competition_{i,t}\right) + \sum_{j=1}^{j=13} \gamma_{j+1,i} BFC_{j,i,t} + \sum_{k=1}^{k=9} \gamma_{k+14,i} ID_{k,i,t} + \sum_{l=1}^{l=14} \gamma_{l+23,i} YD_{l,i,t} + \varepsilon_{i,t} \quad (2)$$

where the competition variable is represented by the natural logarithm of the six measures outlined in Section 3.2 (*NUMACQ*, *DEALVAL*, *NUMSUCACQ*, *SUCDEALVAL*, *NUMFAILACQ* and *FAILDEALVAL*); *BFC* represents bid and firm characteristics; *ID* represents industry dummies; and *YD* represents year dummies. If the abnormal returns earned by the acquiring firms are influenced by competition in the takeover market, then the γ_1 coefficient should be statistically significant. If the competition measures investigated in this study are strong candidates for takeover market competition, then γ_1 should be significant across most of these measures.

Prior studies have found several bid and firm characteristics that influence the announcement period abnormal returns earned by acquirers. Following these studies (see, e.g. Travlos, 1987; Franks and Harris, 1989; Capron and Shen, 2007; Ang and Kohers, 2001; Asquith et al., 1983; Lubatkin, 1983; Mørck et al. 1990; Jensen and Ruback, 1983; Bradley et al., 1988; Lang et al., 1989; Lang et al., 1991; Moeller et al., 2004; Humphery-Jenner and Powell, 2011; Jensen, 1986; Harford, 1999; Maloney et al., 1993), I include the following bid/firm characteristics as control variables in Equation (2): (i) cash-only dummy; (ii) stock-only dummy; (iii) relative size of the acquisition; (iv) public target dummy; (v) relatedness dummy; (vi) deal attitude dummy; (vii) takeover bid dummy; (viii) serial bidder dummy; (ix) firm size; (x) leverage (i.e. debt-to-assets ratio); (xi) cash holdings; (xii) Tobin's Q; and (xiii) return on assets (ROA).

In this study, I also control for year and industry effects to account for influences stemming from year-specific and industry-specific factors. Following Petersen (2009), I estimate all regression models clustered at the bidder's industry level to account for heteroscedasticity, while correcting for possible autocorrelation at the firm level. The un-tabulated Spearman rank-order correlations matrix and variance inflation factor (VIF)

scores reveal that no significant problem from multicollinearity exists among the independent variables in the models.

To test Hypotheses 2–4, I split the sample as follows: (i) public versus private target acquisitions; (ii) acquisitions by large versus small acquirers; and (ii) cash-financed versus stock-financed acquisitions, and then estimate Equation (2) for each sub-sample.

5. Empirical findings

5.1. Acquisitions market competition and announcement period returns to acquirers

Table 4 reports the estimates for Equation (2), with Models 1–6 presenting the results for the six alternative competition measures introduced in Section 3.2. The takeover market competition variable generates negative coefficients in all six models estimated, of which four are significant at conventional levels, providing strong evidence that takeover market competition has a significant negative impact on the announcement period abnormal returns of acquirers. In terms of economic significance, in response to a one standard deviation increase in the natural logarithm of dollar values and total number of monthly acquisition deals, the announcement period abnormal return decreases by 0.52% (= -0.0059×0.8826) for *DEALVAL*, and for *NUMACQ*, by 0.54% (= -0.0146×0.3716).[12] This finding is of particular interest given that the sample of Australian acquirers used in this study earned positive abnormal returns, on average, during the announcement period. It should be noted that Table 2, Panel E reports an announcement period abnormal return of 0.26%. The conclusion that emerges from this analysis is that competition in the acquisitions market is associated with statistically significant and economically important negative abnormal returns to acquirers, thus providing evidence leading to the rejection of Hypothesis 1. The findings corroborate the evidence that takeover market competition has a significant negative influence on acquirers' announcement period returns (Mørck et al., 1990; James and Wier, 1987; De et al., 1996; Moeller et al., 2004). However, the

[12] Table 3 shows the standard deviations of competition measures without their conversion to the scale of natural logarithms. When I estimate the economic significance of Models 1 and 2, I use standard deviations of the natural logarithms of *DEALVAL* and *NUMACQ*. The standard deviations of these two competition measures amount to 0.8826 and 0.3716, respectively.

current study's findings disagree with the evidence reported in two earlier Australian studies by Humphery-Jenner and Powell (2011) and Shams et al. (2013) who found no relationship between takeover market competition and acquirers' returns in Australia. The earlier findings may be attributable to the use of an incomplete competition measure as these studies used publicly announced multiple bids as the measure of competition in the takeover market.

To put the findings into perspective, I convert announcement period abnormal returns associated with a one standard deviation increase in takeover market competition to a dollar value by multiplying the decrease in abnormal return by each company's market capitalisation as of day *t*-30. I find a cross-sectional average decrease in dollar value of A$7.11 million using *DEALVAL* and A$7.38 million using *NUMACQ* for sample firms.[13] The average unexpected drop in wealth (A$7.25 million) experienced by these acquirers is greater than the market capitalisation of 23% of the bidders in this study's sample. The substantial wealth loss reported by acquirers reflects the present value of the decrease in future cash flows attached by the capital market to value-destroying acquisitions executed by acquirers in a competitive takeover market. It appears that the market interprets competition-induced bids offered by Australian firms as value-destroying acquisitions executed by companies that are probably guided by managerial overconfidence and hubris.

Turning to the bid characteristics used as control variables, I find significant market response to the options of cash versus stock methods of payment: the coefficients for cash-only dummies are significant for Models 1 to 4, whereas the coefficients for stock-only dummies are negative and significant for Models 1 and 2. This finding is hardly surprising as an earlier Australian study (Humphery-Jenner and Powell, 2011) revealed that cash-financed acquisitions have a significant negative association with the excess returns of acquirers of both private and public targets, while stock-financed acquisitions are shown to have no association with the excess returns of public target acquirers. Both Tobin's Q (Models 1, 2, 5 and 6) and relative size variables generate

[13] The average market capitalisation one month prior to acquisition announcements is A$2,987.30.

positive and significant coefficients. The cash holdings of bidders are found to be positive and significant in Models 1, 2, 5 and 6, while ROA is significant in Models 5 and 6. These results support the view that the market rewards bidders with positive abnormal returns when they are high-growth firms and maintain high cash holdings. This result is consistent with the findings of Lang et al. (1989) and Servaes (1991). The finding of a positive association between relative size and abnormal return corroborates the evidence revealed in prior studies (Franks and Harris, 1989; Capron and Shen, 2007; Ang and Kohers, 2001; Asquith et al., 1983), but contradicts the evidence of Kuehn (1975) who found a negative relationship. Even though prior studies have identified that multiple bid attempts are associated with the hubris motives of managers (Antoniou et al., 2008; Fuller et al., 2002; Schipper and Thompson, 1983), I find that serial bid attempts have a significant positive influence on acquirers' abnormal returns. In line with prior studies (Moeller et al., 2004; Humphery-Jenner and Powell, 2011), I find evidence that acquirer size is insignificantly associated with announcement period returns.

5.2. Endogeneity test

The possibility exists that takeover market competition and acquisition announcement period returns could be endogenously related. It might be possible that intense competition in the market attracts more bidders to the takeover process, with this expected to impact on market reactions to acquisition announcements. On the other hand, when bidders' acquisition performance is favourable within the market, bidders tend to increase competition in the market. To mitigate the reverse causality of the model, the current study employs a two-stage instrumental variable (IV) approach following prior studies (e.g. Abernethy et al., 2004; Aboody et al., 2004). Takeover market competition (two proxies of takeover market competition) is regressed as follows: (i) natural logarithm of total monthly dollar value of deals and (ii) natural logarithm of total monthly takeover bids, with these as possible determinants of takeover market competition that are likely to affect competition in the takeover market but are unlikely to affect announcement period returns. The two instruments are: (i) the year and industry median values of the

total number (dollar value) of monthly takeover bids and (ii) the year and city median values of the total number (dollar value) of monthly takeover bids.

The results of this analysis are reported in Table 5. The median year and industry and the median year and city competition proxies are entered into the first-stage models (Models 1 and 3), generating positive and significant coefficients at the 1% significance level, thus implying that they are very good predictors of takeover market competition. The output of the second-stage instrumental-variable (IV) regression model (Models 2 and 4) shows that the coefficients for the fitted takeover competition variables are negative and significant at the 5% significance level (-0.0081 and -0.0687 for monthly dollar values [*DEALVAL*] and number [*NUMACQ*], respectively). The Sargan test confirms that instrumental variables (IVs) are uncorrelated with the error term in the second-stage regressions (*p*-values = 0.74 and 0.90). Therefore, the main results remain unchanged after controlling for endogeneity.

5.3. Target organisational form, takeover market competition and market reaction

It is well documented in the acquisition literature that acquirers of private targets are rewarded with significantly higher announcement period returns than their counterparts that acquire public targets.[14] In Table 4, I confirm this view by observing that the public target acquirer dummy variable enters Equation (2) with negative and significant coefficients in all six models. This finding implies that, in the absence of takeover competition, the market interprets acquisitions made by public target acquirers as value-destroying investments. Does the market believe that public target acquirers necessarily make bad acquisitions when confronted with competition from other prospective bidders? Are they not disciplined by the competition in the takeover market and able to make value-creating acquisitions? To address these concerns, I examine the takeover market competition–acquirer return relationship with this conditional on the organisational form of the target acquired. For this purpose, I split the sample into two groups, public target

[14] To conserve space in this paper, in the remaining analyses, I use only the measures *LOGDEALVAL* (Table 6, Models 1 and 3) and *LOGNUMACQ* (Table 6, Models 2 and 4) to represent takeover market competition in the acquisitions market. I obtain qualitatively similar results when using the remaining measures to capture takeover market competition.

acquirers and private target acquirers, estimating Equation (2) for these two groups separately. The results are reported in Table 6.

As shown in Table 6, a clear distinction exists between the two acquisitions markets in relation to the association between competition in the takeover market and acquirers' returns. Competition in the acquisitions market for private targets has a negative and significant influence on announcement period abnormal returns as reported in Models 3 and 4, while competition in the acquisitions market for public targets has no significant influence (Models 1 and 2). For the private target acquirer sub-sample, both takeover market competition variables reported in Models 3 and 4 generate negative and significant coefficients, thus implying that the market penalises acquirers with significant negative abnormal returns when companies offer bids to acquire private targets, prompted by the potential takeover market competition in the market. In terms of economic significance, in response to a one standard deviation increase in takeover market competition, the announcement period abnormal returns earned by acquirers of private targets decrease by 0.52% and 0.62% for *LOGDEALVAL* and *LOGNUMACQ* (= -0.0059×0.8826 and = -0.0166×0.3716), respectively.[15] However, the takeover market competition variable enters the regression model with insignificant coefficients for the public targets sub-sample. This implies that the market believes that firms do not destroy value when they acquire public targets in a competitive environment. The findings therefore fail to reject Hypothesis 2. These findings add an interesting perspective to the market response debate on public versus private target acquisitions. It seems that acquirers of public targets become less overconfident in a competitive environment, while their private target acquirer counterparts become more overconfident and fall prey to competition, thereby making value-destroying acquisitions.

5.4. Influence of firm size on association between takeover market competition and market response to acquisition announcements

[15] The first two terms in the parentheses are the coefficient values of *LOGDEALVAL* and *LOGNUMACQ*, respectively, for the private target sample, while the second two terms are the standard deviations of the natural logarithms of *DEALVAL* (0.8826) and *NUMACQ* (0.3716), respectively.

In the current study, I next test whether the market reaction to competition-induced bids is conditional based on acquirers' size differences. For this purpose, I define a large acquirer as a company with a market capitalisation above the median and a small acquirer as a company with a below median market capitalisation. In the sample, the large acquirers reported a mean (median) market capitalisation of A$2,455.63 million (A$792.65 million) while small acquirers reported a mean (median) market capitalisation of A$43.88 million (A$22.50 million). As reported in Table 3, Panel B, large acquirers earn an announcement period abnormal return of 0.08% (significant at the 1% level), while small acquirers earn an announcement period abnormal return of 0.44% (significant at the 1% level). I estimate Equation (2) separately for large acquirers and small acquirers and present the results in Table 7.

As shown in Table 7, an influence of acquirer size is evident on the takeover market competition–market reaction relationship. Models 1 and 2 show that the coefficients generated for the two competition measures are negative (*LOGDEALVAL* = -0.0056 and *LOGNUMACQ* = -0.0130) and significant at the 1% and 10% level, respectively, for the large acquirer group. In terms of economic significance, in response to a one standard deviation increase in takeover market competition, the announcement period abnormal return earned by large acquirers decreases by -0.49% and -0.48% for *LOGDEALVAL* and *LOGNUMACQ* (= -0.0056×0.8826 and = -0.0130×0.3716), respectively.[16] On the other hand, the takeover market competition coefficients generated for the small acquirer sample are insignificant. It appears that large acquirers are more likely to fall prey to takeover market competition and to overbid for targets, thereby bringing negative synergies into the firm and leading the market to interpret these acquisitions as negative NPV decisions. Therefore, the evidence supports Hypothesis 3.

Moeller et al. (2004) found that large US companies tend to acquire public targets while small US companies tend to acquire private targets. If this phenomenon holds in the Australian market, the results reported in Tables 5 and 6 should demonstrate

[16] The first two terms in the parentheses are the coefficient values for *LOGDEALVAL* and *LOGNUMACQ*, respectively, while the second two terms are the standard deviations of the natural logarithms of *LOGDEALVAL* and *LOGNUMACQ*, respectively.

compatibility; that is, large acquirers of public targets should report a positive relationship between competition in the takeover market and abnormal returns. I estimate the following equations for the public target and private target samples using *LOGDEALVAL*:

$$CAR_{i,(t-1\ to\ t+1)} = \gamma_0 + \gamma_1(Competition_{i,t}) + \gamma_2(Large - public/private - logsumval_{i,t}) + \gamma_2(Large\ dummy_{i,t}) + \gamma_2(Public/private\ dummy_{i,t}) + \varepsilon_{i,t} \quad (3)$$

The two interaction variables: (i) '*Log Deal Value* × *Public Target* × *Large Acquirers Dummy'* and (ii) '*Log Deal Value* × *Private Target* × *Large Acquirers Dummy'* are used to understand the total effect of target organisational forms, competition and size of the acquirers. I find a positive and significant coefficient (0.0020) for '*Log Deal Value* × *Public Target* × *Large Acquisitions'* and a negative and significant coefficient (-0.0016) for '*Log Deal Value* × *Private Target* × *Large Acquisitions'* at 1% level of significance. The implication is that large acquirers become more overconfident when they offer bids to private firms. With these deals being executed privately and under the radar of scrutiny by the investment community, as well as in the absence of price reference points and published financial information for private targets, cash-rich large acquirers may overbid for these private targets, destroying the value of these firms. This can be translated into a negative abnormal return in a competitive acquisitions market.

5.5. Influence of payment method on association between takeover market competition and market response to acquisition announcements

This section reports on the study's examination of whether the method of payment has any influence on the takeover market competition–abnormal return relationship for Australian acquirers. For this purpose, I identify two sub-samples: (i) cash-only deals and (ii) stock-only deals. The sample has 697 pure cash deals and 483 pure stock deals. Equation (2) is estimated separately for these two groups with the results reported in Table 8.

The findings provide strong support for the prediction that, in a competitive takeover market where managers use overvalued stock to finance acquisitions, the capital market reacts negatively during these announcements. The two competition variables

reported in Models 3 and 4 show statistically significant and negative coefficients for the stock-financed deal sample (*LOGDEALVAL* = -0.0151 and *LOGNUMACQ* = -0.0631). In terms of economic significance, in response to a one standard deviation increase in takeover market competition, the announcement period abnormal return earned by stock finance deals decreases by 1.33% and 2.34% for *DEALVAL* and *NUMACQ* (= -0.0151×0.8826 and = -0.0631×0.3716), respectively.[17] On the other hand, the two competition coefficients remain insignificant for the group of cash-financed deals. Clearly, the negative impact on the announcement period return is considerably larger for stock-financed acquisitions, owing to the market's expectation that these acquisitions demonstrate significant underperformance in the capital market in the long run. Therefore, the findings provide evidence in support of Hypothesis 4.

To understand if the acquirer's size and the target's organisational form play a role in the method-of-payment decision by Australian acquirers, I compute the fractions of large versus small acquirers and public target acquirers versus private target acquirers in each of the method-of-payment samples. In the group of stock-financed acquisitions, I find that 63.15% (36.85%) are private target (public target) acquirers and 29.81% (70.19%) are large (small) acquirers. This implies that, to some extent, the acquirer's size and the target's organisational form play a role in the decision to use cash or stock as the method of payment in acquisitions.

5.6. Takeover market competition and long-run operation performance

This section reports on the study's examination of whether takeover market competition has any association with post-acquisition long-run performance. For this purpose, I examine whether takeover market competition has any impact on firms' long-run market value and operating performance. The results are reported in Table 9.[18]

[17] The first two terms in the parentheses are the coefficient values for *LOGDEALVAL* and *LOGNUMACQ*, respectively, while the second two terms are the standard deviations of the natural logarithms of *LOGDEALVAL* and *LOGNUMACQ*, respectively.

[18] Due to the unavailability of Tobin's Q and return on assets (ROA) data during the three-year post-acquisition period, the sample size used in these estimations is reduced to 1,645.

As shown in Table 9, acquisitions announced in a competitive takeover market have a significant negative impact on long-run market value and operating performance. Bidders experience significantly lower market values and operating performance following acquisitions in a competitive takeover market.

The two competition variables reported in Models 1 and 2 generate significant negative coefficients for the Tobin's Q measure (*LOGDEALVAL* = -0.0236; *LOGNUMACQ* = -0.0489) in the post-acquisition periods. Similarly, the current study finds negative and statistically significant coefficients in Models 3 and 4 when using return on assets (ROA) as an alternative proxy for post-acquisition performance. The findings of negative post-acquisition performance using both Tobin's Q and ROA are supportive of the argument that managerial hubris and overconfidence result in high premiums paid to targets to deter competitors. Therefore, the acquisition decision becomes a negative NPV decision.

5.7. Recipe for managerial overconfidence in a competitive takeover market

The analyses conducted so far imply that, when confronted with competition in the acquisitions market, private target acquirers, large acquirers and stock-financed deals experience significantly lower abnormal returns than public target acquirers, small acquirers and cash-financed deals. This finding provides the grounds for asking the following question: are private target acquisitions executed by large acquirers using stock as the method of payment the recipe for overconfidence in a competitive acquisitions market? To answer this question, I extract a sub-sample of acquisitions that belong to this group and compare the abnormal return earned by those in the group with the rest of the sample. I find that members of this group earn an announcement period abnormal return of 0.64% while the remaining acquirers generate a return of 0.80%: the difference in abnormal return between these two groups is significant at the 1% level (un-tabulated). To gain an additional insight into this issue, I also estimate the following model:

$$CAR_{i,(t-1\ to\ t+1)} = \gamma_0 + \gamma_1\left(Competition_{i,t}\right) + \gamma_2\left(Large - private - stock\ dummy_{i,t}\right) + \gamma_2\left(Competition_{i,t} \times Large - private - stock\ dummy_{i,t}\right) + \varepsilon_{i,t} \quad (4)$$

where the large-private-stock dummy takes the value of 1 (one) if a large acquirer acquires a private target through a stock-financed transaction (*LGPRST Acquisitions*, hereafter), and 0 (zero) otherwise. The following output is obtained when *LOGDEALVAL* is used as the measure of takeover market competition[19]:

$$CAR_{i,(t-1\ to\ t+1)} = 0.0803^{***} - 0.0071^{***}\left(Competition_{i,t}\right) - 0.4824^{***}\left(LGPRST\ Acquisitions_{i,t}\right) + 0.0587^{***}\left(Competition_{i,t} \times LGPRST\ Acquisitions_{i,t}\right) + \varepsilon_{i,t}$$

As I expected, both *Competition* and *LGPRST Acquisitions* variables enter the regression model with negative coefficients which are significant at the 1% level.[20] The implication is that takeover market competition has a significant negative impact on the announcement period abnormal return earned by acquirers, with this phenomenon significantly more pronounced for the *LGPRST* group compared to the rest of the acquirers in the sample. The interaction term – *Competition*LGPRST Acquisitions* – generates a positive and significant coefficient which is also significant at the 1% level. It is hardly surprising that this coefficient is positive as it is the product of *Competition* and *LGRST Acquisitions* variables which generate significant negative coefficients. This indicates that the combined effect of *Competition* and *LGPRST Acquisitions* is greater than their individual effects. It is clear from the above output that *LGPRST* acquisitions experience a significant loss of wealth in a competitive acquisitions market compared to that experienced by an average acquirer. It appears that the market believes that managers of these groups suffer from excessive overconfidence and engage in value-destroying acquisitions in a competitive takeover market. In this context, it is reasonable to assume

[19] Findings are virtually similar when *LOGNUMACQ* is used as the measure of takeover market competition.

[20] To conserve space in this paper, these results are not reported in table format.

that those overconfident managers in this group of companies who fall prey to competition in the acquisitions market overbid for targets.

6. Robustness tests

Several robustness tests are then conducted in the study to see if the findings are sensitive to changes in methodological and estimation concerns. To this end, I estimate regressions similar to those shown in Table 4, as it is on these regressions that the investigation of the main research question in the study is centred. The findings are reported in Table 10.

In Table 10, Panel A, I use a longer announcement period (five days, from day -2 to day +2) to calculate the abnormal return. A longer event window is used, assuming that the information on acquisitions is leaked to the market before the announcement date and that the market may take longer to assimilate the information about acquisitions into share prices. The findings firstly reveal that takeover market competition-induced acquisitions are associated with significant negative abnormal returns, with both takeover market coefficients being negative and significant at the 1% and 10% level. Secondly, I use the quarterly number of acquisitions and the quarterly sum of deal values as the measures of takeover market competition and find (as shown in Panel B) that the main findings also hold for this alteration. Thirdly, I add a number of corporate governance characteristics such as board size, proportion of independent directors and Chief Executive Officer (CEO) tenure as control variables as the literature has suggested that these governance characteristics have an influence on the acquisition decisions of bidding firms. The findings reported in Table10, Panel C remain similar to those reported in Table 4. Finally, in Table 10, Panel D, I use the bid premium paid in acquisitions as the dependent variable in Equation (2). If managers fall prey to takeover market competition and pay excessive premiums for targets, I assume that I would then observe a positive relationship between takeover market competition and bid premium.[21] I find this indeed to be the case; the

[21] The bid premium is calculated by dividing the deal value by the market value of the target 30 days prior to the acquisition. For private targets, I calculate a proxy bid premium, following Humphery-Jenner and Powell (2011) and Officer (2007). For this purpose, the average actual bid premium paid by public target acquirers in a particular industry in a particular year is used to calculate the bid premium for private target acquisitions.

coefficient for the takeover market competition variable generates positive and significant coefficients in both models estimated.

For additional tests, I re-estimate regressions after: (i) excluding acquisitions in the GFC period (i.e. in 2007 and 2008) and (ii) excluding acquisitions that made big dollar losses or big dollar gains (defined as those with dollar cumulative abnormal returns of less than -A$10 million or greater than A$1 million, following Moeller et al. (2005) and Masulis et al. (2007). The findings remain mostly robust to these alterations in the sample selection procedure.

7. Conclusion

In this study, I examine the influence of competition in the takeover market on the short-run market performance of Australian acquirers using a sample of completed acquisitions for the period from January 1993–December 2017. To avoid the weaknesses of prior studies that used the number of publicly announced bidders to represent takeover competition, several alternative measures are used in this study to capture competition in the acquisitions market. I also analyse the possible influences of the organisational form of the target acquired, the size of the acquirer and the method of payment on the relationship between takeover market competition and the market reaction to acquisition announcements.

When the influence of takeover market competition on the announcement period abnormal return is investigated, the current study finds that takeover market competition has a significant negative influence on the announcement period abnormal return earned by acquirers. However, when the differences in takeover market competition between bidders for public targets and those bidding for private targets are scrutinised, the study finds that takeover market competition in the former market is insignificantly associated with acquirer returns. On the other hand, takeover market competition in the latter market has a significant negative association with the market performance of acquirers. These findings imply that the market penalises with significant negative abnormal returns when acquirers offer competition-induced bids to acquire private targets. This finding is

somewhat contradictory to evidence in prior studies that acquirers of private targets earn significantly higher positive returns than acquirers of public targets. The current study's findings reveal that, in a competitive acquisitions market, private target acquirers suffer from overconfidence while public target acquirers are disciplined by competition in the acquisitions market. I also find that the negative association between acquisitions market competition and acquirer return is more pronounced for large acquirers and stock-financed acquisitions in comparison to small acquirers and cash-financed acquisitions. The analysis of post-acquisition performance shows that bidders experience significant negative performance following acquisitions in a competitive takeover market.

Further analyses reveal that competition-induced bids offered by large acquirers to purchase private targets through stock-financed deals are heavily penalised by market participants compared to other types of acquisitions. Managerial overconfidence and hubris seem to play an important role in this style of acquisition, allowing the market to interpret these acquisitions as value-destroying investment decisions. This is further confirmed by the significant and negative long-term market performance and profitability of the bidders in the post-acquisition period. The study's findings remain robust to alterations addressing several methodological concerns, the issue of endogeneity and sample selection procedures.

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Table 1: Year-by-Year and Industry-by-Industry Classification of Final Sample

Panel A: Sample by year			Panel B: Sample by bidder's industry		
Year	**Frequency**	**%**	**Industry**	**Frequency**	**%**
1993	20	0.69	Basic Materials	549	18.90
1994	18	0.62	Consumer Goods	195	6.71
1995	16	0.55	Consumer Services	393	13.53
1996	20	0.69	Financials	653	22.49
1997	36	1.24	Health Care	171	5.89
1998	48	1.65	Industrials	508	17.49
1999	60	2.07	Oil and Gas	122	4.20
2000	95	3.27	Technology	224	7.71
2001	132	4.55	Telecommunications	58	2.00
2002	118	4.06	Utilities	31	1.07
2003	144	4.96	**Total**	**2,904**	**100**
2004	148	5.10			
2005	164	5.65			
2006	216	7.44			
2007	253	8.71			
2008	150	5.17			
2009	94	3.24			
2010	121	4.17			
2011	123	4.24			
2012	109	3.75			
2013	119	4.10			
2014	187	6.44			
2015	174	5.99			
2016	170	5.85			
2017	169	5.82			
Total	**2,904**	**100**			

Note: The table reports year-by-year and industry-by-industry distribution for the final sample analysed in the study.

Table 2: Descriptive Statistics for Bid and Firm Characteristics

Variable	Mean	Median	Standard deviation	Minimum	Maximum
Panel A: Firm Characteristics					
Bidder's market value (A$ millions)	1249.7564	172.8765	3634.2853	1.0980	31640.4340
Total debt to total assets	0.2042	0.1702	0.2040	0.0000	1.0996
Cash holdings to total assets	0.1377	0.0553	0.2061	0.0002	0.9711
Tobin's Q	1.2007	1.1147	0.2792	1.0029	2.9255
ROA	0.0171	0.0403	0.0515	-0.0574	0.0652
Panel B: Medium of Payment					
Cash	0.2400	0.0000	0.4272	0.0000	1.0000
Stock	0.1663	0.0000	0.3724	0.0000	1.0000
Mixed (cash plus stock)	0.2025	0.0000	0.4019	0.0000	1.0000
Other combinations	0.3912	0.0000	0.4881	0.0000	1.0000
Panel C: Acquisition Ownership					
% sought in acquisition	93.1575	100.0000	17.0126	0.9000	100.0000
% of shares acquired	93.0777	100.0000	17.2615	1.0000	100.0000
% owned after acquisition	94.6257	100.0000	16.0084	3.9000	100.0000
Panel D: Other Bid Characteristics					
Deal value (A$ millions)	66.3742	8.2470	212.7663	0.0370	1587.0000
Relative size of acquisition	0.3613	0.0614	0.9337	0.0003	6.4453
Public Target Dummy	0.1787	0.0000	0.3832	0.0000	1.0000
Deal attitude	0.0503	0.0000	0.2186	0.0000	1.0000
Serial bidder ≥ 5	0.1154	0.0000	0.3195	0.0000	1.0000
Takeover bid dummy	0.1023	0.0000	0.3031	0.0000	1.0000
Related	0.3134	0.0000	0.4639	0.0000	1.0000
Unrelated	0.6866	1.0000	0.4639	0.0000	1.0000
Panel E: Abnormal return					
Announcement period cumulative abnormal returns (CAR) (3DCAR)	0.0026	-0.0012	0.1104	-0.2448	0.8445

Note: The table reports descriptive statistics for the firm and acquisition characteristics for the sample. The variables are defined in Appendix A.

Table 3: Descriptive Statistics and Correlation Matrix for Competition Variables

Panel A: Descriptive Statistics

	Mean	Median	St. dev.	Minimum	Maximum
Monthly acquisition bids (NUMACQ)	50.76	23.42	34.50	49.50	63.50
Monthly total deal value of acquisition bids (DEALVAL)	5,248.61	10,134.81	1,443.37	2,941.33	6,001.11
Monthly number of successful acquisitions (NUMSUCACQ)	38.18	17.73	26.00	36.00	48.00
Monthly total deal value of successful acquisitions (SUCDEALVAL)	3,516.45	3,807.54	1,091.80	2,266.35	4,384.24
Monthly number of failed acquisition bids (NUMFAILACQ)	14.51	7.31	9.00	14.00	18.00
Monthly total deal value of failed acquisition bids (FAILDEALVAL)	1,764.29	7,819.54	189.04	394.81	1066.76

Panel B: Mean and Median 3-Day CAR for main bid characteristics

	Public Target		**Private Target**		**Large Bidders**		**Small Bidders**		**Cash only**		**Stock only**	
3-Day CAR	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
	-0.0155	-0.0084	0.0066	-0.0003	0.0008	0.0005	0.0044	-0.0035	-0.0006	0.0004	-0.0043	-0.0102
	t-test		Wilcoxon signed-rank test		*t*-test		Wilcoxon signed-rank test		*t*-test		Wilcoxon signed-rank test	
Mean/median difference	-0.0221***		-0.0081***		-0.0036		0.0040***		0.0037		0.0106***	

Panel C: Correlation Matrix

	LOGNUMACQ	**LOGDEALVAL**	**LOGNUMSUCACQ**	**LOGSUCDEALVAL**	**LOGNUMFAILACQ**	**LOGFAILDEALVAL**
LOGNUMACQ	1.0000					
LOGDEALVAL	0.6276***	1.0000				
LOGNUMSUCACQ	0.9596***	0.5781***	1.0000			
LOGSUCDEALVAL	0.5976***	0.8576***	0.5835***	1.0000		
LOGNUMFAILACQ	0.7858***	0.6049***	-	-	1.0000	
LOGFAILDEALVAL	0.3765***	0.6365***	-	-	0.5417***	1.0000

Note: The table reports descriptive statistics (Panel A) and the Spearman rank order correlation matrix (Panel B) for the takeover market competition measures. Superscript *** indicates statistical significance at the 1% level. The study uses natural logarithm transformations of competition measures when analysing correlations. The variables are defined in Appendix A.

Table 4: Takeover Market Competition and Market Reaction to Acquisition Announcements

	DV=3DCAR	DV=3DCAR	DV=3DCAR	DV=3DCAR	DV=3DCAR	DV=3DCAR
	LOGDEALVAL	LOGNUMACQ	LOGSUCDEALVAL	LOGNUMSUCACQ	LOGFAILDEALVAL	LOGNUMFAILACQ
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Constant	0.0513	0.0538	0.0421	0.0668*	-0.1223**	-0.1255**
	(0.18)	(0.20)	(0.17)	(0.06)	(0.04)	(0.04)
Takeover market competition	-0.0059***	-0.0146*	-0.0056**	-0.0206**	0.0040	0.0125
	(0.01)	(0.06)	(0.04)	(0.01)	(0.21)	(0.36)
Cash-only dummy	-0.0112***	-0.0110***	-0.0155***	-0.0154***	0.0002	0.0004
	(0.01)	(0.01)	(0.00)	(0.00)	(0.98)	(0.97)
Stock-only dummy	-0.0157*	-0.0154*	-0.0123	-0.0124	-0.0180	-0.0189
	(0.08)	(0.08)	(0.26)	(0.25)	(0.26)	(0.23)
Relative size	0.0136**	0.0134**	0.0130	0.0128	0.0141*	0.0145*
	(0.02)	(0.02)	(0.10)	(0.11)	(0.08)	(0.07)
Public target acquirer dummy	-0.0195***	-0.0201***	-0.0190**	-0.0196**	-0.0272*	-0.0256*
	(0.00)	(0.00)	(0.02)	(0.02)	(0.06)	(0.07)
Relatedness dummy	0.0004	0.0004	-0.0023	-0.0021	0.0077	0.0078
	(0.93)	(0.93)	(0.64)	(0.66)	(0.48)	(0.47)
Deal attitude dummy	-0.0036	-0.0040	-0.0038	-0.0049	0.0080	0.0085
	(0.54)	(0.50)	(0.62)	(0.52)	(0.52)	(0.49)
Takeover bid dummy	0.0063	0.0065	0.0103	0.0106	-0.0020	-0.0032
	(0.35)	(0.33)	(0.19)	(0.18)	(0.90)	(0.84)
Serial bidder dummy	0.0099**	0.0099**	0.0114***	0.0112***	0.0040	0.0033
	(0.02)	(0.01)	(0.00)	(0.00)	(0.69)	(0.74)
Natural logarithm of market capitalisation	0.0007	0.0007	0.0009	0.0008	-0.0009	-0.0007
	(0.55)	(0.59)	(0.48)	(0.56)	(0.74)	(0.79)
Debt to assets ratio	0.0204	0.0203	0.0076	0.0071	0.0374	0.0371
	(0.21)	(0.21)	(0.65)	(0.67)	(0.25)	(0.25)
Cash holdings to assets ratio	0.0497**	0.0508**	0.0348	0.0352	0.0744*	0.0727*
	(0.03)	(0.03)	(0.21)	(0.21)	(0.06)	(0.06)
Tobin's Q	0.0231***	0.0228***	0.0113	0.0112	0.0509**	0.0500**
	(0.01)	(0.01)	(0.14)	(0.14)	(0.04)	(0.05)
Return on assets	0.0787	0.0830	-0.0155	-0.0129	0.3396***	0.3362***
	(0.18)	(0.16)	(0.80)	(0.83)	(0.01)	(0.01)
Year and industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	2,904	2,904	2,064	2,064	840	840
R-squared	0.0726	0.0720	0.0781	0.0786	0.1147	0.1140
F-statistic	3.97***	3.90***	3.17***	3.25***	2.37***	2.42***

Note: This table presents the regression results of takeover market competition, and market reaction to acquisition announcement and control variables. All model specifications employ robust standard errors with one-way clustered (*t*-statistics) which are reported in the parentheses below each coefficient. The superscripts ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels, respectively. See Appendix A for the variable definitions.

Table 5: Takeover Market Competition and Market Reaction: Two-Stage Least Squares Regression

	LOGDEALVAL		LOGNUMACQ	
	First Stage	Second Stage	First Stage	Second Stage
	Model 1	Model 2	Model 3	Model 4
Constant	-2.2266***	0.0422	2.9181***	0.2616*
	(0.000)	(0.310)	(0.000)	(0.051)
Competition_Ind_Yr	0.5758***		0.0798***	
	(0.000)		(0.000)	
Competition_City_Yr	0.6930***		0.0712***	
	(0.000)		(0.000)	
Pred_competition		-0.0081**		-0.0687**
		(0.024)		(0.025)
Cash-only dummy	0.0229	-0.0114***	0.0169*	-0.0104**
	(0.406)	(0.005)	(0.098)	(0.011)
Stock-only dummy	-0.0292	-0.0158*	-0.0106	-0.0163*
	(0.364)	(0.061)	(0.370)	(0.054)
Relative size	0.0218*	0.0149**	-0.0020	0.0146**
	(0.066)	(0.010)	(0.657)	(0.012)
Public target acquirer dummy	0.0514	-0.0192***	-0.0055	-0.0201***
	(0.205)	(0.004)	(0.709)	(0.003)
Relatedness dummy	-0.0274	-0.0000	-0.0115	-0.0005
	(0.232)	(0.998)	(0.191)	(0.901)
Deal attitude dummy	0.0648	-0.0045	0.0050	-0.0047
	(0.183)	(0.421)	(0.781)	(0.411)
Takeover bid dummy	-0.0195	0.0079	0.0043	0.0083
	(0.696)	(0.218)	(0.808)	(0.198)
Serial bidder dummy	0.0947***	0.0100***	0.0210	0.0107***
	(0.010)	(0.002)	(0.108)	(0.002)
Natural logarithm of market capitalisation	-0.0045	0.0005	-0.0068***	0.0001
	(0.494)	(0.669)	(0.005)	(0.959)
Debt to assets ratio	0.0259	0.0196	0.0032	0.0195
	(0.653)	(0.209)	(0.880)	(0.207)
Cash holdings to assets ratio	-0.0510	0.0482**	0.0224	0.0501**
	(0.390)	(0.030)	(0.310)	(0.024)
Tobin's Q	0.0547	0.0225***	0.0127	0.0229***
	(0.155)	(0.006)	(0.301)	(0.005)
Return on assets	-0.4075	0.0652	-0.0170	0.0676
	(0.161)	(0.218)	(0.870)	(0.202)
Under-Identification Test (Kleibergen–Paap LM statistic):	115.49***		446.05***	
Over-Identification (Sargan statistic)	0.11		0.01	

	(0.74)	(0.90)
Weak Identification Test (Crag–Donald Wald F-statistic)	85.99	874.24
Year and industry dummies	Yes	Yes
N	2,873	2,873
Adj *R*-squared	0.0631	0.0541

Note: This table presents the two-stage least squares regression results of takeover market competition, and market reaction to acquisition announcement using two instruments: (i) year and industry median values of the monthly deal values of takeover bids and (ii) year and city median values of the monthly deal values of takeover bids and control variables. All model specifications employ robust standard errors with one-way clustered (*t*-statistics) which are reported in the parentheses below each coefficient. The superscripts ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels, respectively. See Appendix A for the variable definitions.

Table 6: Takeover Market Competition, Organisational Form of Target and Market Reaction

	Public targets		**Private targets**	
	DV=3DCAR	**DV=3DCAR**	**DV=3DCAR**	**DV=3DCAR**
	Model 1	**Model 2**	**Model 3**	**Model 4**
Constant	-0.0104	-0.0227	0.0412	0.0523
	(0.83)	(0.78)	(0.33)	(0.25)
LOGDEALVAL / LOGNUMACQ	-0.0023	-0.0009	-0.0059**	-0.0166**
	(0.64)	(0.96)	(0.02)	(0.05)
Cash-only dummy	-0.0022	-0.0017	-0.0166***	-0.0167***
	(0.76)	(0.81)	(0.00)	(0.00)
Stock-only dummy	-0.0134	-0.0130	-0.0127	-0.0128
	(0.11)	(0.13)	(0.29)	(0.29)
Relative size	-0.0133**	-0.0136**	0.0163**	0.0162**
	(0.04)	(0.04)	(0.02)	(0.02)
Relatedness dummy	0.0001	0.0002	0.0017	0.0017
	(0.99)	(0.98)	(0.75)	(0.75)
Deal attitude dummy	-0.0057	-0.0058	0.0105	0.0097
	(0.42)	(0.41)	(0.27)	(0.31)
Takeover bid dummy	0.0032	0.0031	-0.0026	-0.0001
	(0.63)	(0.64)	(0.89)	(1.00)
Serial bidder dummy	0.0293**	0.0291**	0.0104***	0.0106***
	(0.05)	(0.05)	(0.01)	(0.01)
Natural logarithm of market capitalisation	-0.0021	-0.0022	0.0005	0.0005
	(0.34)	(0.31)	(0.71)	(0.72)
Debt to assets ratio	0.0382**	0.0379*	0.0166	0.0164
	(0.05)	(0.05)	(0.38)	(0.39)
Cash holdings to assets ratio	-0.0015	-0.0017	0.0509**	0.0521**
	(0.96)	(0.95)	(0.05)	(0.04)
Tobin's Q	0.0304*	0.0304*	0.0194*	0.0191*
	(0.05)	(0.05)	(0.05)	(0.06)
Return on assets	0.1359	0.1402	0.1062	0.1095
	(0.17)	(0.16)	(0.12)	(0.11)
Year and industry dummies	Yes	Yes	Yes	Yes
N	519	519	2385	2385
R-squared	0.1440	0.1436	0.0812	0.0809
F-statistic	2.90***	2.84***	3.32***	3.26***

Note: This table presents the regression results of takeover market competition, and market reaction to acquisition announcement for two sub-samples: (i) public target acquisition and (ii) private target acquisition and control variables. All model specifications employ robust standard errors with one-way clustered (*t*-statistics) which are reported in the parentheses below each coefficient. The superscripts ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels, respectively. See Appendix A for the variable definitions.

Table 7: Takeover Market Competition, Acquirer Size, and Market Reaction

	Large acquirers		Small acquirers	
	DV=3DCAR	DV=3DCAR	DV=3DCAR	DV=3DCAR
	Model 1	Model 2	Model 3	Model 4
Constant	0.0689***	0.0729**	0.0500	0.0683
	(0.00)	(0.02)	(0.44)	(0.35)
LOGDEALVAL / LOGNUMACQ	-0.0056***	-0.0130*	-0.0062	-0.0196
	(0.00)	(0.09)	(0.15)	(0.17)
Cash-only dummy	-0.0103***	-0.0102***	-0.0118	-0.0116
	(0.00)	(0.00)	(0.17)	(0.18)
Stock-only dummy	-0.0031	-0.0034	-0.0224*	-0.0220*
	(0.60)	(0.57)	(0.09)	(0.09)
Relative size	-0.0031	-0.0042	0.0126**	0.0126**
	(0.62)	(0.50)	(0.04)	(0.05)
Public target dummy	-0.0142**	-0.0143**	-0.0235*	-0.0243*
	(0.03)	(0.03)	(0.08)	(0.07)
Relatedness dummy	0.0024	0.0023	-0.0011	-0.0010
	(0.51)	(0.52)	(0.90)	(0.91)
Deal attitude dummy	-0.0016	-0.0017	-0.0043	-0.0047
	(0.77)	(0.76)	(0.72)	(0.70)
Takeover bid dummy	0.0057	0.0060	0.0058	0.0056
	(0.41)	(0.39)	(0.68)	(0.69)
Serial bidder dummy	0.0032	0.0031	0.0198**	0.0197**
	(0.27)	(0.27)	(0.02)	(0.02)
Natural logarithm of market capitalisation	-0.0014	-0.0016*	-0.0031	-0.0030
	(0.15)	(0.10)	(0.44)	(0.45)
Debt to assets ratio	-0.0077	-0.0079	0.0256	0.0255
	(0.49)	(0.48)	(0.24)	(0.25)
Cash holdings to assets ratio	-0.0017	-0.0019	0.0584**	0.0599**
	(0.90)	(0.90)	(0.03)	(0.03)
Tobin's Q	0.0046	0.0040	0.0324**	0.0328**
	(0.39)	(0.46)	(0.02)	(0.02)
Return on assets	-0.0573	-0.0557	0.1175	0.1204
	(0.46)	(0.47)	(0.16)	(0.15)
Year and industry dummies	Yes	Yes	Yes	Yes
N	1452	1452	1452	1452
R-squared	0.1249	0.1219	0.0865	0.0864
F-statistic	3.78***	3.64***	2.83***	2.83***

Note: This table presents the regression results of takeover market competition, and market reaction to acquisition announcement for two sub-samples: (i) large acquirers and (ii) small acquirers and control variables. All model specifications employ robust standard errors with one-way clustered (*t*-statistics) which are reported in the parentheses below each coefficient. The superscripts ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels, respectively. See Appendix A for the variable definitions.

Table 8: Takeover Market Competition, Payment Method and Market Reaction

	Cash-financed deals		**Stock-financed deals**	
	DV=3DCAR	**DV=3DCAR**	**DV=3DCAR**	**DV=3DCAR**
	Model 1	**Model 2**	**Model 3**	**Model 4**
Constant	-0.0504	-0.0710	0.0408	0.1413
	(0.21)	(0.14)	(0.68)	(0.23)
LOGDEALVAL / LOGNUMACQ	0.0005	0.0079	-0.0151*	-0.0631**
	(0.87)	(0.43)	(0.06)	(0.03)
Relative size	0.0325	0.0325	0.0036	0.0028
	(0.14)	(0.14)	(0.67)	(0.75)
Public target dummy	0.0039	0.0034	-0.0594***	-0.0600***
	(0.80)	(0.82)	(0.00)	(0.00)
Relatedness dummy	-0.0012	-0.0014	-0.0001	-0.0016
	(0.82)	(0.80)	(0.99)	(0.92)
Deal attitude dummy	-0.0075	-0.0072	-0.0056	-0.0037
	(0.39)	(0.41)	(0.76)	(0.84)
Takeover bid dummy	-0.0082	-0.0081	0.0208	0.0214
	(0.49)	(0.49)	(0.21)	(0.20)
Serial bidder dummy	0.0079*	0.0078	-0.0078	-0.0101
	(0.10)	(0.11)	(0.64)	(0.57)
Natural logarithm of market capitalisation	0.0001	0.0002	0.0063	0.0054
	(0.94)	(0.91)	(0.19)	(0.27)
Debt to assets ratio	0.0218	0.0216	0.0105	0.0114
	(0.27)	(0.27)	(0.78)	(0.76)
Cash holdings to assets ratio	-0.0009	-0.0014	0.0190	0.0240
	(0.98)	(0.97)	(0.68)	(0.61)
Tobin's Q	0.0076	0.0074	0.0316	0.0326
	(0.56)	(0.57)	(0.35)	(0.34)
Return on assets	0.1084	0.1059	-0.2156	-0.2004
	(0.18)	(0.19)	(0.22)	(0.25)
Year and industry dummies	Yes	Yes	Yes	Yes
N	697	697	483	483
R-squared	0.1523	0.1529	0.1120	0.1147
F-statistic	1.38*	1.39*	-	-

Note: This table presents the regression results of takeover market competition, and market reaction to acquisition announcement for two sub-samples: (i) cash financed and (ii) stock financed and control variables. All model specifications employ robust standard errors with one-way clustered (*t*-statistics) which are reported in the parentheses below each coefficient. The superscripts ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels, respectively. See Appendix A for the variable definitions.

Table 9: Takeover Market Competition and Post-Acquisition Long-Run Performance

	NUMACQ	DEALVAL	NUMACQ	DEALVAL
	DV=AVGTOBINQ$_{T+3}$	DV=AVGTOBINQ$_{T+3}$	DV=AVGROA$_{T+3}$	DV=AVGROA$_{T+3}$
	Model 1	**Model 2**	**Model 3**	**Model 4**
Constant	0.5971**	0.5766**	-0.5052***	-0.4577***
	(0.05)	(0.03)	(0.00)	(0.00)
LOGDEALVAL / LOGNUMACQ	-0.0236***	-0.0489**	-0.0116*	-0.0424**
	(0.00)	(0.05)	(0.08)	(0.03)
Cash-only dummy	0.0063	0.0078	0.0209*	0.0218**
	(0.73)	(0.67)	(0.06)	(0.05)
Stock-only dummy	-0.0220	-0.0215	-0.0487***	-0.0488***
	(0.34)	(0.35)	(0.00)	(0.00)
Relative size	0.0111	0.0110	-0.0113	-0.0113
	(0.48)	(0.49)	(0.29)	(0.29)
Public target acquirer dummy	-0.0471	-0.0484	0.0227	0.0218
	(0.11)	(0.10)	(0.13)	(0.15)
Relatedness dummy	0.0172	0.0173	0.0132	0.0127
	(0.27)	(0.28)	(0.24)	(0.26)
Deal attitude dummy	-0.0065	-0.0079	-0.0481**	-0.0488**
	(0.91)	(0.89)	(0.03)	(0.03)
Takeover bid dummy	0.0356	0.0353	0.0093	0.0091
	(0.19)	(0.19)	(0.58)	(0.59)
Serial bidder dummy	-0.0099	-0.0110	-0.0286	-0.0292
	(0.70)	(0.67)	(0.18)	(0.17)
Natural logarithm of market capitalisation	0.0183*	0.0180*	0.0376***	0.0375***
	(0.08)	(0.08)	(0.00)	(0.00)
Debt to assets ratio	-0.1661***	-0.1687***	0.0929***	0.0921***
	(0.00)	(0.00)	(0.01)	(0.01)
Cash holdings to assets ratio	-0.0672	-0.0650	-0.0517	-0.0501
	(0.34)	(0.35)	(0.25)	(0.26)
Tobin's Q$_{(T-1)}$	0.4697***	0.4695***	-	-
	(0.00)	(0.00)		
Tobin's Q	-	-	0.0650**	0.0663**
			(0.01)	(0.01)
Return on assets $_{(T-1)}$	-	-	0.0095**	0.0097**
			(0.05)	(0.04)
ROA	-0.8321*	-0.8207*	-	-
	(0.06)	(0.06)	-	-
Year and industry dummies	Yes	Yes	Yes	Yes
N	1,645	1,645	1,645	1,645
R-squared	0.3735	0.3723	0.4072	0.4075
F-statistic	5.88	5.81	11.69	11.82

Note: This table presents the regression results of takeover market competition, and long-run operating performance to acquisition announcement and control variables. All model specifications employ robust standard errors with one-way clustered (*t*-statistics) which are reported in the parentheses below each coefficient. The superscripts ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels, respectively. See Appendix A for the variable definitions.

Table 10: Robustness Test Results

Panel A: Regression output using 5-day cumulative abnormal return		
	DV=5DCAR	**DV=5DCAR**
	Model 1	**Model 2**
Constant	0.0449	0.0440
	(0.20)	(0.30)
LOGDEALVAL / LOGNUMACQ	-0.0082***	-0.0171*
	(0.01)	(0.08)
Control variables	Yes	Yes
Year and industry dummies	Yes	Yes
N	2,813	2,813
R-squared	0.0818	0.0807
F-statistic	3.97***	3.90***
Panel B: Regression output using alternative proxies of acquisitions market competition		
	DV=3DCAR	**DV=3DCAR**
	Model 1	**Model 2**
Constant	0.1544*	0.2678*
	(0.05)	(0.05)
LOGDEALVAL / LOGNUMACQ (quarterly)	-0.0113**	-0.0312*
	(0.04)	(0.06)
Control variables	Yes	Yes
Year and industry dummies	Yes	Yes
N	2904	2904
R-squared	0.0721	0.0719
F-statistic	4.01***	3.90***
Panel C: Regression output after adding governance characteristics as control variables		
	DV=3DCAR	**DV=3DCAR**
	Model 1	**Model 2**
Constant	0.0373	0.0863
	(0.38)	(0.15)
LOGDEALVAL / LOGNUMACQ	-0.0056*	-0.0229*
	(0.07)	(0.08)
Bdsize	0.0017	0.0016
	(0.34)	(0.36)
CEO duality	-0.0116	-0.0120
	(0.39)	(0.37)
Board independence	-0.0006	0.0005
	(0.98)	(0.98)
Control variables	Yes	Yes
Year and industry dummies	Yes	Yes
N	791	791
R-squared	0.1118	0.1124
F-statistic	2.67***	3.12***
Panel D: Regression output when bid premium is used as the dependent variable		
	DV=BIDPREM	**DV= BIDPREM**
	Model 1	**Model 2**
Constant	-2.5686	-5.0826**
	(0.24)	(0.03)
LOGDEALVAL / LOGNUMACQ	0.4892**	1.8191**
	(0.05)	(0.01)
Control variables	Yes	Yes
Year and industry dummies	Yes	Yes

N	2603	2603
R-squared	0.1184	0.1189
F-statistic	1.46**	1.25

Note: This table presents the regression results of takeover market competition, and market reaction to acquisition announcement using 5-day cumulative abnormal returns (Panel A), alternative proxies of takeover competition (Panel B), controlling governance variables (Panel C) and bid premium (Panel D) as the dependent variable and control variables, respectively. All model specifications employ robust standard errors with one-way clustered (*t*-statistics) which are reported in the parentheses below each coefficient. The superscripts ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels, respectively. See Appendix A for the variable definitions.

Appendix A: Definitions of Variables

Variable	Definition
Definition of Competition Measures	
Number of monthly acquisition bids (*NUMACQ*)	The total number of acquisition bids announced by both domestic and overseas bidders for Australian targets in a given month as reported by the SDC Platinum database.
Deal value of monthly acquisition deals (*DEALVAL*)	The sum of deal values of all deals announced in a given month as reported by the SDC Platinum database.
Number of monthly successful acquisition bids (*NUMSUACQ*)	The number of acquisition deals successfully executed by acquirers, both domestic and overseas, in a given month as reported by the SDC Platinum database.
Deal value of monthly successful acquisition deals (*SUCDEALVAL*)	The sum of all successful deals executed in a given month as reported by the SDC Platinum database.
Number of monthly failed acquisition bids (*NUMFAILACQ*)	The number of failed acquisition bids announced in a given month as reported by the SDC Platinum database.
Deal value of monthly failed acquisitions (*FAILDEALVA*L)	The sum of the deal value of failed bids in a given month as reported by the SDC Platinum database.
Definition of Dependent Variable	
3-day CAR	The cumulative abnormal return calculated using Equation (1) for a 3-day event window from day -1 to day +1.
Bid premium	The ratio of the final offer price to the target stock price four weeks prior to the original announcement date -1.
Instrumental Variables	
Competition_Ind_Yr	The year and industry median values of the monthly number (deal values) of takeover bids.
Competition_City_Yr	The year and city median values of the monthly number (deal values) of takeover bids.
Definition of Bid Characteristics	
Private target acquirer dummy	Equals 1 if a company acquires a private firm, and 0 otherwise.

Public target acquirer dummy	Equals 1 if a company acquires a public firm, and 0 otherwise.
Large acquirer dummy	Equals 1 if an acquirer is classified as a large firm.
Small acquirer dummy	Equals 1 if an acquirer is classified as a small firm.
Cash-only dummy	Equals 1 if more than 50% of the deal is financed by cash, and 0 otherwise.
Stock-only dummy	Equals 1 if more than 50% of the deal is financed by stock, and 0 otherwise.
Relative size of the acquisition	Transaction value reported by SDC divided by market value of the acquirer one month prior to the acquisition announcement.
Relatedness of acquisition	Equals 1 if both the bidder and target share the same four-digit primary Standard Industry Classification (SIC) code reported by SDC.
Deal attitude dummy	Equals 1 if a deal is hostile in nature, and 0 otherwise.
Takeover bid dummy	Equals 1 if SDC classifies the bid as a tender offer, and 0 otherwise.
Serial bidder dummy	Equals 1 if the acquirer completed five or more takeovers during the sample period, and 0 otherwise.
Definitions of firm characteristics	
Acquirer size	The natural logarithm of the bidder's market capitalisation (Datastream item WC08001).
Market value of assets	Market capitalisation (Datastream item WC08001) plus long-term debt (Datastream item WC03251).
Debt to assets ratio	Short-term debt plus current portion of long-term debt plus long-term debt divided by total assets (Datastream item WC08236).
Cash holdings to assets ratio	Total cash holdings (Datastream item WC02003) divided by total assets (Datastream WC02999).
Tobin's Q	Market capitalisation (Datastream item WC08001) plus total liabilities (Datastream item WC03351) divided by market capitalisation (Datastream item WC08001) plus total debt (Datastream item WC03255).
Return on assets (ROA)	Net income minus bottom line plus (interest expense on debt minus interest capitalised* [1-tax rate]) divided by average of last year's and current year's total assets (Datastream item WC08326).
Stock return	$Ln\left(\frac{P_{i,t}}{P_{i,t-1}}\right)$
Market return	$Ln\left(\frac{All\ ordinaries\ index_t}{All\ ordinaries\ index_{t-1}}\right)$