

School of Accounting

**The Impact of Market Optimism and CEO Pay Disparity
on Takeover Premium and Bidder Performance:
Australian Evidence**

Hoa Anh Thi Luong

**This thesis is presented for the Degree of
Doctor of Philosophy
of
Curtin University**

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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university

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To the memory of my father, Hong Quang Luong

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Abstract

Mergers and acquisitions are major corporate investments in which stakeholders would expect managers to exert their skills and efforts to analyse the market condition and select potential targets to maximise the value of the firms. Nonetheless, takeover premiums have been observed to be arguably high, whereas the mixed evidence that the transactions can be value-enhancing or value-destroying to the bidders has been widely presented. At the same time, being the decision makers of the corporations, CEOs receive a substantial pay gap to other managers, which has fuelled an intense debate on the underlying reason and the effectiveness of the enormous CEO pay package. Within this context, this thesis aims to explain the impact of market optimism and acquiring firms' CEO pay disparity on takeover premium and bidder performance for listed companies on the Australian Stock Exchange from 2002 to 2015. The modified detrended market price-to-earnings ratio approach is used to identify market optimism. CEO pay disparity is computed by comparing CEO pay to that of other directors on the board.

On the impact of market optimism, this thesis finds that acquiring firms offer larger takeover premiums if the deals are conducted in high market optimism periods. The correlation between market optimism and bidder announcement returns is significantly positive, while a negative association with the two-year post-takeover returns is found. The findings suggest that the positive announcement returns of acquiring firms can be explained by the market sentiment whereas target selection is a possible explanation for bidder long-term performance.

With reference to the effect of CEO pay disparity on takeover premiums and bidder returns, this thesis finds that takeover premiums are significantly higher if the deals are processed by CEOs with high pay disparity in cash pay or total pay. The high

disparity in the equity-based compensation does not have an impact on takeover premium. In contrast to the United States and the United Kingdom markets, Australian acquiring firms that offer high CEO pay disparity in the cash component and total pay do not receive a favourable immediate market response; however, they earn higher returns in the long term. This thesis does not find evidence that offering a large premium harms shareholder wealth of the acquiring firms. These findings suggest that high CEO pay disparity may be a reflection of managerial skills and efforts, which results in better long-term performance of the bidding firms.

For the interaction between market optimism and CEO pay disparity, higher bid premiums are paid when CEOs with high pay disparity in the cash component and the total pay take action in a high optimistic environment. This thesis reveals that CEOs with high pay disparity in the long-term category significantly outperform their counterparts at the time surrounding the announcement if they initiate the deal in high market optimism. Contrarily, lower returns over the two-year post-takeover period are observed when CEOs with low pay disparity take action in a strong market. The findings in this research support a combination of both the market misvaluation theory and the efficient contracting theory in an Australian context.

Papers in Conference Proceedings

The following papers based on this thesis have been included in domestic and international conference proceedings:

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CEO Relative Compensation, Takeover Premium and Bidder Performance in Australia: Efficient Contracting or Managerial Power?, Financial Market and Corporate Governance (FMCG) 2018 Conference, Melbourne, Australia, April 2018.

Market optimism, CEO Overconfidence and Bidder Performance in Australia, Doctorial Colloquium, Accounting and Finance Association of Australia and New Zealand (AFAANZ) 2017, Adelaide, Australia, July 2017.

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List of Abbreviations

ARs: abnormal returns	120
ASIC: Australian Securities and Investments Commission.....	253
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BHARs: buy-and-hold abnormal returns	14
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US: United States	1

Chapter 1: Introduction

1.1 BACKGROUND

Mergers and acquisitions (M&As) are among the most significant investment strategies, not only because they reallocate resources in the economy and redefine firms' boundaries, but also because they have direct and profound implications to both managers and shareholders (e.g., Harford, 2005; Jensen, 1986; Shleifer and Vishny, 2003; Weston, Mitchell, and Mulherin, 2003). In recent decades, takeovers have been recorded at a substantial volume worldwide (Gaughan, 2011; DePamphilis, 2015; Thomson Reuters, 2017; UNCTAD, 2018). From 1990 to 2017, there were 934,212 deals valued at \$67,127 billion announced globally, with the United States (US) being the busiest market for merger transactions (Institute of Mergers Acquisitions and Alliances, 2018).¹

Nevertheless, it has been widely documented that takeovers occur unevenly, with gains to target shareholders considerably high whereas post-takeover returns to acquirers remain varied. Takeover clustering has been recorded from time to time (e.g., DePamphilis, 2015; Gaughan, 2011), suggesting some common factors shaping companies' decisions to merge (Mitchell and Mulherin, 1996; Gaughan, 2011). To target shareholders, enormous gains have been reported (e.g., Alexandridis, Petmezas, and Travlos, 2010; Andrade, Mitchell, and Stafford, 2001). However, returns to the acquiring firms have been inconsistent with some studies reporting positive abnormal returns to bidders (e.g., Franks, Harris, and Titman, 1991; Mandelker, 1974) while the incidence of wealth destruction seems to be more widely observed (e.g., Agrawal, Jaffe, and Mandelker, 1992; Asquith, Bruner, and Mullins Jr (1983); Betton, Eckbo,

¹ See Appendix A for number of deals and value of M&As announced worldwide from 1990 to 2017.

and Thorburn, 2008; Malatesta, 1983). The evidence presented in the literature embarks on a quest to investigate the determining factors of takeover decisions, takeover premiums and post-takeover returns to bidders.

Firms' decisions to conduct takeover transactions are influenced by the aggregate market optimism with the involvement of various parties (e.g., Bouwman, Fuller, and Nain, 2009; Gort, 1969; Shleifer and Vishny, 2003). Market participants bring different knowledge, skills and perspectives that determine their investment activities and together form the overall level of market optimism (Baker and Nofsinger, 2002; Festinger, 1957; Lakonishok, Shleifer, and Vishny, 1994; Shefrin, 2002). Moreover, financial markets have specific features that lead to the likelihood of market optimism being present and affecting corporate decisions. The low predictability and the way markets rectify optimism bias, which is noisy in the short term and time-consuming in the long term, makes it hard for market participants to learn from their own and others' failures (e.g., Baron, 1970; Chang, 2001; Holthausen, 1979; Puri and Robinson, 2007). As a result, it is highly likely that takeover decisions and consequences are affected by the aggregate market optimism.

The takeover process and outcomes are also largely driven by Chief Executive Officers (CEOs), who have the overall responsibility for the performance of the entire organisation (Haspeslagh and Jemison, 1991; Haunschild, 1994; Finkelstein and Hambrick, 1996; Bertrand and Schoar, 2003). CEOs are not randomly assigned to firms. Their managerial role is the result of a complicated puzzle based on the individual skill set and behaviours, the supply and demand of the labour market, corporate governance practice and other organisational features (March and Simon, 1958; Cyert and March, 1963; Jensen and Meckling, 1976; Bertrand and Schoar, 2003). Additionally, takeovers are risky and require more skills and efforts from managers. These transactions also deliver opportunities that can exacerbate the potential conflicts of interest between agent and principal (Davidson, 1981; Haspeslagh and Jemison, 1991; Sitkin and Pablo, 2004). Consequently, the effectiveness of the managerial contracts are reflected in how CEOs perform and generate wealth to shareholders.

The existing literature appears to largely focus on investigating the impact on takeovers of the aggregate market (Bouwman et al., 2009; Gugler, Mueller, Weichselbaumer, and Burcin, 2012) and the CEO separately (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990). This is probably a static view without considering the simultaneous influence of the two driving forces. In fact, CEOs with their values, cognitive base and personal traits act as a filter for the outside environment to have an impact on the internal resources (March and Simon, 1958; Cyert and March, 1963; Scott and Mitchell, 1976; Bertrand and Schoar, 2003). More profoundly, corporate strategies are more difficult to predict under the combination of certain market conditions and managers' attributes than when taking only one of them into consideration. Analysing the impact of market optimism and CEO characteristics on takeover decisions becomes more challenging with the absence of direct measurements for each factor. Additionally, specific features and regulations in different markets are highly likely to alter the impact of each driver. Taken as a whole, the above perplexity raises a number of unanswered questions. How do aggregate markets and CEOs simultaneously impact takeovers? How can this impact be measured? Several studies in the US and the United Kingdom (UK) examine the co-effect of the aggregate market and CEOs on takeovers, with concerns about the influence of CEOs who are overconfident or envious (Crocì et al., 2010; Goel and Thakor, 2010). However, do different market features and regulations lead to different takeover consequences? This thesis attempts to solve this puzzle in the Australian setting.

1.2 MOTIVATIONS

There are several motivations for this study. Firstly, together with the global trend, the past decades have witnessed a surge in M&A activities in Australia. From 1990 to 2017, Australian firms announced 42,144 deals, which amounted to \$2,502.9 billion (Institute of Mergers Acquisitions and Alliances, 2018).² The Australian takeover market can be considered as one of the major markets. Globally, it ranks the eighth largest market by acquirer nation and the seventh largest market by target nation

² See Appendix B for number of deals and value of M&As announced in Australia from 1990 to 2017 in comparison with the Asia-Pacific region.

(Institute of Mergers Acquisitions and Alliances, 2018). It accounts for approximately 19% of the number of takeover deals and 22% of the takeover value in the Asia-Pacific region for the period from 1990 to 2017. These facts have highlighted the need for understanding the different determining factors and the consequences of takeovers in the Australian market.

Secondly, market optimism has been recognised as a driver of takeover transactions (e.g., Bouwman et al., 2009; Gugler, Mueller, Weichselbaumer, and Burcin, 2012; Shleifer and Vishny, 2003). Previous studies generally refer to market optimism as optimism in the stock market (Bouwman et al., 2009; Croci et al., 2010; Goel and Thakor, 2010). However, the stock market and the bond market are alternatives to both investors and managers. Investors decide the investment channel by comparing the expected returns in the stock market and the bond market whereas managers choose to finance their projects by issuing equity or raising debt (Miller, 1977). In general, equity-financing is chosen if firms are overvalued (Jensen and Meckling, 1976; Shleifer and Vishny, 2003; Hackbarth, 2008). In the other case, cash-financing is preferred if shares are undervalued because investors are less optimistic about future prospects of the firms (Jensen and Meckling, 1976; Shleifer and Vishny, 2003; Hackbarth, 2008). Therefore, incorporating the optimism level of both the stock market and the bond market is required to derive the optimism level of the whole market. This research expects to fulfil such a requirement.

Thirdly, corporate decisions in general, and takeovers in particular, depend on how CEOs, as the decision makers, perceive the situation and how they apply their knowledge and management philosophy into the decision-making process (Cyert and March, 1963; Haspeslagh and Jemison, 1991; Haunschild, 1994). Nevertheless, assessing CEOs' decisions is challenging because CEOs are not only diverse in characteristics and cognitive behaviours but also in their value setting (March and Simon, 1958; Fama and Jensen, 1983; Bertrand and Schoar, 2003). If managers act in the best interest of shareholders, they will aim at maximising shareholder wealth. In contrast, if pursuing their own objectives, they may engage in M&As at the expense of shareholders. Moreover, CEO values, characteristics and cognitive behaviours cannot be directly measured (March and Simon, 1958; Cyert and March, 1963; Hart

and Holmström, 1986; Bertrand and Schoar, 2003). CEO pay disparity is one of the proxies that reveals more information on CEO personal traits, judgement and behaviours than the absolute remuneration (Festinger, 1954; Goodman, 1974; Wade et al., 2006). High CEO pay disparity gives CEOs a sense of being recognised, which affects their attitude and decisions. CEO pay disparity carries information about the comparable skills and accomplishments among CEOs and other directors. Additionally, it reflects firms' monitoring towards CEO incentive, whether it facilitates the alignment of interest among agents and principals, or whether it allows CEOs to have a significant command over the board to obtain a lucrative compensation package (Mirrlees, 1976b; Harris and Raviv, 1979; Grossman and Hart, 1983; Bebchuk and Fried, 2003). In general, comparing CEO pay with other directors in the same organisation is one of the popular ways to analyse executive compensation. Nonetheless, Goodman (1974, p. 173) says:

“Others in similar jobs represent only one case. Also many of these referents exist outside the focal organisation in which the individual is paid, and their pay may be based on standards quite different from his organisation.”

For this reason, this study contends that it is more comprehensive to expand the comparison of CEO pay disparity to outside the organisation. This study suggests that ranking high and low CEO pay disparity based on a range of company and industry specifics is one approach of doing so.³

Fourthly, extensive research has been carried out on the impact of the market and CEO pay disparity on takeovers as two distinct determining factors. It has been documented that optimism in the stock market relates to takeover premiums and bidder returns (Bouwman et al., 2009; Croci et al., 2010; Goel and Thakor, 2010). Other studies equate CEO pay disparity to agency problem and CEO behaviours, which eventually harm shareholder wealth (Hayward and Hambrick, 1997; Bebchuk et al., 2011). However, there is much less information about effects of the interaction between market optimism and CEO pay disparity. Hence, assessing how CEOs act in

³ Where relating to takeover transactions, this research uses the term CEO pay disparity to refer to the pay disparity of the acquiring firms' CEOs.

different market conditions would provide more insight into the impact of CEO characteristics and market optimism as single factors.

Finally, it has been observed in the US and the UK that stock market optimism and irrational CEOs harm shareholder wealth (Hayward and Hambrick, 1997; Bouwman et al., 2009; Goel and Thakor, 2010; Bebchuk et al., 2011). It is expected that market conditions and specific regulations under which CEOs make their decisions should not be ignored. To the best of my knowledge, there is no investigation into the Australian takeover market, which is a well-developed and a major market. This study will aim at filling this gap in the literature. The Australian M&A market is relatively unique as it imposes more restrictions than other countries (DeMott, 1987; Mannolini, 2002). It is also considered to be a combination of the UK and the US systems (Hutson, 2002). The current regulations make the acquisition of public companies relatively risky and expensive. The Australian market is strictly regulated by a number of legislations, such as the Corporations Act (2001), the Competition and Consumer Act (2010) and the Listing Rules of the Australian Stock Exchange (ASX). Chapter 6 of the Corporations Act (2001) specifically mentions:

- (a) “ the acquisition takes place in an efficient, competitive and informed market; and
- (b) the holders of the shares or interests, and the directors of the company or body or the responsible entity for the scheme:
 - (i) know the identity of any person who proposes to acquire a substantial interest in the company, body or scheme; and
 - (ii) have a reasonable time to consider the proposal; and
 - (iii) are given enough information to enable them to assess the merits of the proposal; and
- (c) as far as practicable, the holders of the relevant class of voting shares or interests all have a reasonable and equal opportunity to participate in any benefits accruing to the holders through any proposal under which a person would acquire a substantial interest in the company, body or scheme; and
- (d) an appropriate procedure is followed as a preliminary to compulsory acquisition of voting shares or interests or any other kind of securities.”

Australian regulations on takeovers emphasise the protection of target shareholders. The takeover provisions of the Corporations Act, which are triggered at the threshold of 20%, prevent Australian firms from having significant control in targets before officially announcing the offer. In the US, Section 13D of the Williams Act requires an acquisition of shares threshold of just 5% before filing the public notice of the transaction with the Securities and Exchange Commission. Thus the Australian acquirers are inhibited from obtaining the controlling block of shares from a private party without making an offer to the target shareholders. Additionally, Australian takeovers legislation have restricted partial takeovers and made hostile takeovers more difficult (Lange et al., 2000). These specific features may encourage acquiring firms to carefully select the potential targets and properly evaluate the transaction to reduce the risk of failure and the associated cost.

Additionally, compared to the US and the UK, Australia has a smaller takeover market with cash-financing to be the main method of payment (Christopher and Zicheng, 2008; Duong and Izan, 2012). Bugeja et al. (2016) find 61% of deals financed by cash in the takeover sample from 2000 to 2011. These values deviate sizeably from the US practice (Andrade et al., 2001; Dong et al., 2006; Alexandridis et al., 2013). For the period from 1990 to 2007, Alexandridis et al. (2013) observe 41.34% are cash-financed deals and 53.31% are stock-financed deals. The preferred method of payment in Australian takeovers further suggests the need to incorporate the debt market condition in analysing M&A activities.

Moreover, Australia is often viewed to maintain “best practice” guidelines for corporate governance, compared to other markets (Kiel and Nicholson, 2003). The size of boards in Australia, on average, is smaller and the proportion of insiders on the board is lower than in the US (Kiel and Nicholson, 2003; Fernandes et al., 2013; Schultz et al., 2013). The average Australian board size of the present takeover sample is seven members, which is smaller than the board size of 10 to 12 in the US (Yermack, 1996; Coles et al., 2008) and 10 in the UK (Coakley and Iliopoulou, 2006). In Australia, CEO duality is not a common practice while in the US, CEO duality is often seen in large firms (Hodne et al., 2013; Monem, 2013). As a result, there is less chance

for Australian CEOs to pursue their personal interest and to impose their power on the corporate management.

Australia also differs from the US regarding the CEO employment contract and compensation, thus Australia offers a new setting to study CEO pay (Matolcsy and Wright, 2007; Hill et al., 2011). Hill et al. (2011) reveal that CEO total pay is higher in the US, whereas in Australia there is a large proportion of the base salary with tighter restriction on CEOs' shares and derivatives hedging. It is worth noting that an equity-based component in the CEO pay package is common practice in the US, whereas it is less popular in Australia (Hill et al., 2011; Matolcsy et al., 2012; Fernandes et al., 2013; Schultz et al., 2013). Schultz et al. (2013) report that in the Australian CEO pay package, the short-term component is approximately 78% whereas the long-term category accounts for only 22%. In contrast, stocks and options are far more heavily weighted at around 40% in the US CEO compensation (Hill et al., 2011; Fernandes et al., 2013).

Given the difference in takeover regulations, corporate governance practice and manager pay contracts, analysing the Australian takeover market would potentially provide some insights into the impact of market optimism and CEO pay disparity on bid premium and the performance of the acquiring firms.

1.3 OBJECTIVES

There are four primary objectives of this study.

- To investigate the impact of market optimism on takeover premium and bidder performance.
- To examine the impact of CEO pay disparity on takeover premium and bidder performance.
- To study the impact of CEOs pay disparity on takeover premium and bidder performance in different market conditions.
- To align the findings to the relevant theories, namely the *neoclassical theory*, the *market misvaluation theory*, the *managerial power theory* and

the *efficient contracting theory*, and to assess their implications in the Australian context.

1.4 MAJOR FINDINGS

On the impact of market optimism, this thesis finds that acquiring firms offer larger takeover premiums if the deals are conducted in high market optimism. The correlation between market optimism and bidder announcement returns is significantly positive, while a negative association with the two-year post-takeover returns is found. The findings suggest that the positive announcement returns of acquiring firms can be explained by the market sentiment whereas target selection is a possible explanation for the bidder long-term performance.

With reference to the effect of CEO pay disparity on takeover premium and bidder performance, this thesis finds that takeover premiums are significantly higher if the deals are conducted by CEOs with high pay disparity in cash pay or total pay. The high disparity in the equity-based compensation does not have an impact on bidder long-term performance. In contrast to the US and the UK markets, Australian acquiring firms that offer high CEO pay disparity in the cash component and total pay do not receive a favourable immediate market response; however, they do enjoy higher returns in the long term. This thesis also finds that takeover premium does not harm shareholder wealth of the acquiring firms. These findings suggest that high CEO pay disparity may be a reflection of managerial skills and efforts, which results in better performance of the bidding firms in the long term.

For the interaction between market optimism and CEO pay disparity, higher bid premiums are paid when CEOs with high pay disparity in the cash component and the total pay take action in a high optimistic environment. This thesis reveals that CEOs with high pay disparity in the long-term category significantly outperform their counterpart at the time surrounding the announcement if they process the deal in high market optimism. Contrarily, lower returns over the two years post-takeover period are observed when CEOs with a low pay disparity initiate the deals in a strong market.

The findings in this research support a combination of both the market misvaluation theory and the efficient contracting theory in an Australian context. The positive impact of market optimism on takeover premiums and bidder announcement returns and its negative influence on bidder long-term returns can be explained by the *market misvaluation theory*. This theory argues that the optimistically irrational investors create market mispricing while rational managers of the bidding firms have the ability to time the market and take advantage of the investor sentiment. CEOs have the tendency to offer higher premiums to lock in the deals and to benefit from the upward movement of stock prices surrounding announcement (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006). However, market correction will happen in the long term, which leads to significant loss for the shareholders of the bidding firms (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Dong et al., 2006). Findings on the positive impact of CEO pay disparity on takeover premium and bidder long-term performance can be explained by the *efficient contracting theory*. This theory establishes that CEO pay disparity reflects the supply and demand of the labour market and the skills and efforts of CEOs. It aligns the interests of the agent and the principal and reduces the monitoring cost (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979). As a result, high-performing CEOs offer appropriate premiums when necessary because their decisions may not be responded favourably by the market surrounding the announcement date, but will become value-increasing in the long term.

1.5 CONTRIBUTIONS

Most of the prior studies on the impact of market optimism and CEO pay disparity focus on the US and the UK acquisition markets. However, the Australian takeover market is also large and vibrant. By examining Australian acquiring firms, this thesis not only contributes to the growing and debatable literature but also presents out-of-sample evidence for a different takeover market.

The first contribution of this research is the development of a modified method to classify high and low market optimism. Based on the fact that cash-financing is the

predominant mode of payment in the Australian takeover market, this research proposes a method to incorporate the optimism of the stock market and the bond market. The detrended market price-to-earnings (P/E) ratio is used together with the Spread between the Commercial and Industrial Loan Rate and the Federal Funds Rate to identify high and low optimism of the financial market.

The second contribution is the classification of high and low CEO pay disparity in analysing the Australian takeover market. Four ratios have been computed in both the main tests and robustness tests, including the ratio between CEO compensation and total compensation of all directors on the board, the average compensation of other directors on the board, the total compensation of the top three executives, and the average compensation of the top three executive directors. These ratios have been used in the US market to assess CEO behaviours in corporate decisions in general and in takeovers in particular. However, in Australia, this field of research is relatively scant due to data availability. More specifically, the US compensation databases provide relatively consistent data for the top five executives. Meanwhile, the Connect 4 Boardroom and SIRCA databases do not report compensation information for Australian executives consistently. While some companies report their executive compensation in only two forms, i.e. base salary and superannuation, others also include long-term compensation in their pay package. Therefore, complicated programming codes are required to calculate CEO pay disparity ratios using Australian data. To date, this thesis is the first to be able to include these variables in examining Australian takeover activities. Moreover, this thesis extends the comparison of CEO pay disparity from within the organisation to the whole market by taking both firm and industry specifics into consideration. This approach also has not been used in the Australian context.

The third contribution is a comprehensive analysis of takeover premium and bidder performance, accounting for both the market-wide and the individual CEO effects. Using CEO pay disparity as an indicator of CEO characteristics and power, this thesis examines the takeover decisions of CEOs with high and low pay disparity in different market conditions by constructing the interaction variables between them.

These aspects, which have not been investigated together in prior literature, provide new insights into the determinants of M&A success of the acquiring firms.

The fourth contribution is an empirical investigation of the different prominent theories related to market optimism and CEO pay. By analysing the implications of each theory in all the tests of takeover premiums, bidder announcement returns and long-term returns, this thesis finds that conclusions from one analysis may not be applicable to the others. Each of the four theories, the neoclassical theory, the market misvaluation theory, the managerial power theory and the efficient contracting theory, can explain the impact of market optimism and CEO pay disparity in the Australian context to some extent. However, taking all the analyses together, this thesis suggests the relevance of the *market misvaluation theory* and the *efficient contracting theory* to the present sample. Hence, assessing both the market-wide impact and the individual CEO impact possibly enhances our understanding on the implication of the related theories.

Finally, this thesis uses the most comprehensive and recent available data on executive compensation provided by the Connect 4 Boardroom and SIRCA databases. Previous studies consider shorter periods and only examine compensation of CEOs or non-executive directors (Bugeja et al., 2012; Bugeja, Matolcsy, Mehdi, et al., 2017). This study investigates CEO compensation with comparison to that of all directors on the board as well as the top three executives. The CEO pay disparity ratios are then ranked with control for firm and industry specifics. In the context of Australia restructuring the management pay towards a more efficient mechanism, this empirical analysis potentially provides up-to-date and compelling evidence on the features and effectiveness of the current executive pay practice.

1.6 THESIS STRUCTURE

The remaining chapters are structured as follows.

Chapter 2 reviews the literature surrounding market optimism, CEO pay disparity and takeovers. It covers the optimism concept and its impact on takeover

premium and bidder performance. This chapter continues with the synthesis of the critical role of the CEO in corporate operations and the impact of CEO pay disparity on takeovers. It justifies the possible interaction between market optimism and CEO pay disparity as the two main driving forces of takeovers. This chapter shows that there is a need to incorporate the optimism on both the stock market and the bond market when analysing M&A transactions. It further suggests the need of a study that analyses how optimism at the market-wide level and the individual level have an impact on takeovers in different regulations and markets. It also recommends a reconciliation of the relevant theories to find the reason for the mixed and inconclusive evidence from the prior literature.

Chapter 3 discusses the theoretical frameworks and hypotheses development for the present study. This chapter presents four alternative theories explaining the impact of market optimism and CEO pay disparity on takeover premium and bidder performance: the neoclassical theory, the market misvaluation theory, the managerial power theory and the efficient contracting theory. The neoclassical theory and the market misvaluation theory emphasise the economic, market-wide and industry effects. The managerial power theory and the efficient contracting theory focus on the individual level effects. Based on the diverse views of the four theories, different hypotheses are postulated to examine: (i) the impact of market optimism on takeover premium and bidder performance; (ii) the impact of CEO pay disparity on takeover premium and bidder performance; and (iii) the impact of the interaction between market optimism and CEO pay disparity on takeover premium and bidder performance. The final objective is to align the findings to the relevant theories and assess their implication in the Australian context.

Chapter 4 describes the design adopted by this research to achieve the objectives set out in Section 1.3 It starts with a specification of the methodology to classify high and low market optimism, which incorporates the optimism on the stock market and the bond market. This chapter proposes two proxies for CEO pay disparity: the *CEO Relative Pay to Directors (RelPay)* and the *CEO Pay Slice to Directors (CPS)*. A model to characterise high and low CEO pay disparity is specified. Subsequently, calculation of takeover premium and other controlling factors to analyse the impact of

market optimism and CEO pay disparity is stated. This chapter moves on to justify the approach to derive the cumulative abnormal returns (CARs) and buy-and-hold abnormal returns (BHARs), the models used to assess the impact of market optimism and CEO pay disparity on announcement returns and long-term returns as well as the interaction effects between the market and the individual factor.

Chapter 5 presents a detailed description of the data selection process and descriptive statistics of the sample. This chapter reports the result of identifying market optimism and maps the sample distribution into the corresponding high and low optimism month. Subsequently, measurements of the CEO pay disparity dependent variables *RelPay* and *CPS* and independent variables used in regression models are documented with a discussion on the determinants of CEO pay disparity. This chapter continues with the selection criteria of the takeover sample, justifying the sample period and describing the data obtaining process. Data is obtained from relevant databases, company annual reports and company disclosures. Sample descriptive statistics are then presented.

Chapter 6 reports the empirical results of this study. The univariate and multivariate analyses are conducted to test the specified hypotheses. It discusses the impact of market optimism and CEO pay disparity on takeover premium and bidder performance surrounding announcement and in the one-year and two-year post-takeover periods. The interaction analyses are conducted to investigate the impact of CEO pay disparity when CEOs make takeover decisions in different market conditions. A number of robustness tests are run to prove that the main findings are not sensitive to the sample selection bias and different measures of variables. Additionally, this chapters discusses the relevance of the different theories with the results revealed from the present sample.

Chapter 7 concludes the thesis by providing a summary of the major conclusions from the empirical analysis including the acceptance and rejection of the hypotheses and the relevance of the market misvaluation theory and the efficient contracting theory. It suggests the potential theoretical and practical implications. In addition, it recognises the unsolved issues and directions for future research.

Chapter 2: Literature Review

2.0 CHAPTER OVERVIEW

Chapter 2 reviews the literature surrounding market optimism, CEO pay disparity and takeovers. Firstly, this chapter provides the psychological background of optimism and explains how psychological findings have been integrated into the financial domains. The effects of optimism on market participants and takeovers are synthesised. This chapter proves that there is a need to incorporate the optimism on the stock market and the bond market when analysing M&A transactions. Secondly, this chapter explicates how CEOs can be the key players of the organisations. The underlying reasons for CEO pay disparity to be the proxy of CEO characteristics and power are highlighted together with its impact on takeover decisions. Thirdly, this chapter justifies the possible interaction between market optimism and CEO pay disparity as the two main driving forces of takeovers. Discussing the mixed evidence in the prior literature, this chapter suggests the need of a study that analyses how optimism at the market-wide and the individual level have an impact on takeovers in different regulations and markets.

This chapter is broadly divided into four sub-sections. Section 2.1 covers the optimism concept and its impact on takeover premium and bidder performance. Section 2.2 examines the critical role of the CEO in corporate operations and the impact of CEO pay disparity on takeovers. The interaction effects between market optimism and CEO pay disparity is deliberated in Section 2.3. Section 2.4 summarises the review.

2.1 THE IMPACT OF MARKET OPTIMISM ON TAKEOVER PREMIUM AND BIDDER PERFORMANCE

This section centres on the extant literature on the influence of market optimism on takeover premium and bidder performance. The psychological definition of optimism is presented first, followed by a discussion on the presence of optimism in economics. After that, how optimism enters into the financial markets will be explained, covering both the characteristics of market participants and the features of the financial market. The need for analysing optimism in the stock market and in the bond market is highlighted before synthesising the effects it has on M&As, thus revealing the gaps in the literature that this thesis attempts to fill in.

2.1.1 Market Optimism

2.1.1.1 Optimism in Psychology

“The optimist proclaims that we live in the best of all possible worlds; and the pessimist fears this is true.”

Branch Cabell, *The Silver Stallion*⁴

Optimism is one of *human cognitive behaviours* that has been investigated in a great part of the psychological literature. Scientific definitions of optimism centre on expectancies for the future. Psychologists define optimism as positive expectations about future events (Scheier and Carver, 1985; Scheier et al., 1994; Carver et al., 2010). In an objectively certain world where the future is exactly known, there should be no room for optimism or pessimism. Hence subjective uncertainty is the indispensable condition for optimism or pessimism to exist. In a world of uncertainty, it is unknown what nature will bring or a circumstance will lead to in the future. Under that condition, the optimists are different from the pessimists by their perception about the relative possibility for favourable events and unfavourable consequences associated with uncertainty. More specifically, optimists hope for a greater likelihood

⁴ James Branch Cabell, *The Silver Stallion: A Comedy of Redemption* (1926), Book Four: Coth at Porutsa, Ch. XXVI: The Realist in Defeat

of favourable events and a lesser likelihood to unfavourable consequences (Hey, 1984).

Different theories exist in the psychological literature regarding different sources of optimism, which determine individuals' expectation. These factors can be classified into three main groups: self-perception, information processing errors and social interaction (Baker and Nofsinger, 2002; Montier, 2002; Subrahmanyam, 2008).

The first group includes elements that drive ones' perception about the accuracy of their knowledge and the precision of their estimates of the possible outcomes. Individuals' perception is affected by the illusion of knowledge and the illusion of control. The *illusion of knowledge* happens when individuals have greater information but they may not have sufficient skills and experience to interpret it (Baker and Nofsinger, 2002; Barber and Odean, 2002). The *illusion of control* occurs when people behave as if they have influence over and can make a significant contribution to the outcome of uncontrollable events (Langer, 1975; Barber and Odean, 2002). There are a number of human cognitive bias associates with these illusions. For example, individuals tend to be *overconfident* about their capabilities, their knowledge, and the future scenarios (Fischhoff et al., 1977). Individuals are likely to suffer from *self-attribution bias* when they ascribe the favourable outcome to their personal skills and the undesired consequences to bad luck or to other parties (Miller and Ross, 1975). As a result of *confirmation bias*, individuals have the tendency to seek or to interpret information in a way that fits in with their existing expectations (Nickerson, 1998). Another reason for optimism likely to be observed is the human *cognitive dissonance*, where individuals tend to ignore, reject or minimise information that is opposed to their belief (Festinger, 1957).

The second group contains the likelihood of information processing error, which affects how individuals evaluate risk and future outcomes of an event. The information processing error may have a root in *representativeness bias*, which is the assumption that objects sharing similarity are alike, which may not be true. For example, investors may equalise good companies with good investments or firms with high earnings to be good companies (Baker and Nofsinger, 2002; Shefrin, 2002). The error in

processing information to estimate an outcome may depend on the *reference points and anchoring*, when the brain picks up a category to be the reference point to which the expected outcome of an event can be judged (Rosch, 1975). In another case, people may become overly optimistic because of the desire to feel good about themselves, that is, to avoid regret and to seek pride. For this reason, they may make decisions that are biased towards the “pride side” information, thus placing themselves in the *disposition effect* (Weber and Camerer, 1998; Frazzini, 2006). Interestingly, other line of psychological literature evidences that estimating error can be the result of emotion. For example, individuals may be affected by *attachment bias* when they emotionally attach their decision to a private reason. For instance, managers may choose to acquire a target from an industry of their personal interest or investors insist on buying shares in the companies they previously worked for (Baker and Nofsinger, 2002).

The third group refers to the social interaction factor, which may drive up the optimistic attitude of individuals. The underlying reason is that people do not only rely on their knowledge and perception to estimate the future outcome but they also watch the surrounding parties’ behaviours to make the decision. This *informational cascade* “occurs when it is optimal for an individual, having observed the actions of those ahead of him, to follow the behaviour of the preceding individual without regard to his own information” (Bikhchandani et al., 1992, p. 992). Informational cascade appears in a number of individuals’ behaviours such as *imitation, contagion and herding* (Banerjee, 1992; Bikhchandani et al., 1992). In addition, *media* may immensely influence individuals’ decisions. For example, investors may follow successful traders to invest in the same stocks or managers may overestimate their abilities based on their portrayals by the media (Baker and Nofsinger, 2002; Malmendier and Tate, 2005b). In particular, the influence of social interaction on individuals’ estimates of future events becomes more profound with the rise of the internet (Baker and Nofsinger, 2002; Barber and Odean, 2002)

Taken together, all of the above paths strengthen an individual’s optimistic attitude about the favourable outcome of future events. It is worth noticing that the effects of self-perception, information processing errors and social interaction are highly likely to be applicable to a group of individuals who hold senior positions such

as managers or those whose wealth is at risk such as investors, which encourages studies on their behaviour and the consequences of their decisions.

2.1.1.2 Optimism in the Financial Markets

Optimism enters and impacts the financial market via two main paths. In the first path, the aggregate optimism comes from investors' choice of investment (Miller, 1977). Based on their risk preference, investors make different valuations about the expected returns of the risky securities, which results in their shareholdings. If investors anticipate the share price to increase, the selling price will be higher. In another case, if shares are valued downward, there will be more investors want to hold the stocks, who will bid against each other and drive up the price. Because of the illusion of knowledge, the effects of confirmation bias, cognitive dissonance, representativeness bias, reference point and anchoring, dispositional effects and the social interaction, investors tend to be optimistic when making investment decisions (Festinger, 1957; Nickerson, 1998; Weber and Camerer, 1998; Baker and Nofsinger, 2002; Barber and Odean, 2002; Shefrin, 2002; Frazzini, 2006). The optimistic investor who holds a particular stock will normally believe that the stock promises substantially better performance than most other securities available. This analysis persuades the investor to buy and eventually raise the price. For example, investors tend to seek actions that make them feel proud and avoid actions that bring the regret. As such, they pick up the shares that are strong in the past, suggesting a close link between optimism and stock market boom (Miller, 1977; Lakonishok et al., 1994; Baker and Nofsinger, 2002; Shefrin, 2002). Furthermore, selection bias may cause participants who are more active in the financial markets to be more optimistic than the general public. This is because people are different in capacity and those who consider themselves to be better at trading are more likely to work as traders or active investors (Odean, 1998). In addition, survivorship bias leads to the prevalence of optimism in the financial market. It is possible that unsuccessful investors may decide to drop out of the market while unsuccessful traders who survive will control less wealth than successful traders on average. Because individuals tend to overestimate their own contribution to success, successful investors may become more optimistic over time (Langer and Roth, 1975;

Miller and Ross, 1975; Odean, 1998). In these ways, investors' optimism presents and has its impact in the financial markets.

In the second path, optimism enters the financial market via managers' attitudes and decisions. Managers have the tendency to be more optimistic than ordinary workers (Puri and Robinson, 2006). Being the key players of organisations, managers are highly affected by the illusion of control, overconfident, self-attribution bias, attachment bias or herding (Baker and Nofsinger, 2002; Barber and Odean, 2002; Malmendier and Tate, 2005b). This is because people are likely to be more optimistic when they are personally involved in a task (Daniel et al., 1998). In addition, individuals' optimism is positively related to the outcomes that they are highly committed to. In the case of managers, firms' outcomes are closely attached to their wealth, reputation and employability, which is likely to increase their optimism (Weinstein, 1980; Arabsheibani et al., 2000). Managers not only overestimate the contribution of their ability in the success of the outcomes but also overvalue their investment projects. They believe that the markets undervalue their firms' securities. This attitude results in the managers' decision to invest in negative net present value projects, which have been mistakenly considered to be profitable (Heaton, 2002). It also encourages firms to buy back their stocks when managers believe that firms are undervalued by the market (Daniel et al., 1998). Literature has evidenced various corporate decisions influenced by optimistic managers, including setting capital structure, investment, dividend payouts, mergers and acquisitions, innovation and accounting practice (Bertrand and Schoar, 2003; Simon and Houghton, 2003; Malmendier and Tate, 2005a; Brown and Sarma, 2007; Hackbarth, 2008; Ashton and Roberts, 2011; Bouwman, 2014). In such circumstances, corporate activities reflect the managers' judgement about the market estimation error and hence will signal the market about the expected stock returns (Daniel et al., 1998).

Investor optimism in the financial market has been discussed as a close relative concept to investor sentiment. Baker and Wurgler (2006) define investor sentiment as the propensity to speculate and drive the relative demand shocks such as dividend payouts or earning announcements to investment opportunities. They further describe investor sentiment as optimism or pessimism in the stock market. Barberis et al. (1998)

argue that investor sentiment occurs when investors underreact or overreact to an event because they tend to focus on the strength of the announcement instead of its statistical weight. Aghion and Stein (2004) emphasise the two-way feedbacks in which managers indeed cater to the market's preferences, whether investors prefer growth or profit, while the market rationally reacts to firms' strategies.

Moreover, financial markets have specific features that lead to the likelihood of optimism to be present. Firstly, the low predictability of the financial markets leads to higher level of optimism among market participants. This is because the financial market constitutes a large number of available securities that are different and complicated in behaviour. Hence, it is difficult for market participants to choose stocks that generate higher yields than the similar securities. Consequently, both novices and experts have the need to form the reason for holding their investment portfolios (Odean, 1998). Because of the tendency to be optimistic, market participants prefer to sell the stocks with an upward price change and hold the stocks with a downward price change, to judge themselves as making fewer poor decisions (Baron, 1970; Sandmo, 1971; Holthausen, 1979; Hey, 1984; Chang, 2001; Puri and Robinson, 2007). Moreover, the way markets rectify optimism bias makes it hard for market participants to learn from their own and others' failures. Usually, there is a trade-off between speed and clarity of markets' feedbacks. In short-term markets' response is quicker but noisier, while in long-term markets' response is clearer but takes time to receive. Especially, herd behaviour will make the optimistic attitude prevalent in the financial market (Shefrin and Statman, 1985; Scharfstein and Stein, 1990).

Secondly, the interaction between different market participants with different levels of optimism makes the aggregate optimism to be more pronounced and complicated. The aggregate optimism on the financial market relies on how information is circulated and on who are optimistic (Miller, 1977). Odean (1998) contends that trading volume surges when market participants are overly optimistic. They become overconfident about the precision of information received. Daniel et al. (1998) argue that markets overreact or underreact differently to different types of information. Optimistic investors can cause markets to under respond to the information provided by rational traders, leading to positive serially correlated returns.

The degree of this underreaction or overreaction depends on the proportion of traders who under weigh or over weigh the information. It has been evidenced that people have the tendency to systematically under weigh abstract, statistical and highly relevant information, and over weigh salient, anecdotal and extreme information. This may be the explanation for the different market response to different corporate events and announcements (Hirshleifer et al., 1994; Odean, 1998).

Thirdly, the integration of the stock market and the bond market allows optimism to occur in one market or the other. The stock market and the bond market are alternatives to both investors and managers. Miller (1977) asserts that investors and managers make decisions by analysing available information on both the stock market and the bond market to set their expectation of future returns and risk tolerance. Investors estimate returns from investment by comparing the expected returns with returns from government bonds. At the same time, managers consider the cost of financing their projects by issuing equity or raising debt. Hackbarth (2008) contends that if managers overestimate the growth rate of earnings and believe that the market undervalues the value of the firms, they perceive issuing equity to be more costly than debt. However, if they underestimate the riskiness of future earnings, they will consider the firms to be overvalued by the market. In this case, issuing equity on the stock market is preferred. As such, optimism of investors and managers on the stock market and the bond market interact with each other and further influence the activities of the market participants. The aggregated effect of optimism on the stock market and the bond market on corporate takeovers will be discussed further in this thesis.

Overall, optimism is a human cognitive behaviour that exists and has its effects on individuals, organisations and the economy. Optimism in the financial market depends on investors' attitude, managers' attitude and the specific features of the financial market. The low predictability, the interaction among market participants and the interchangeability between the stock market and the bond market make the influence of optimism more complicated. This indicates a need to incorporate the sources of market optimism and to reconcile the interactive effects among market participants in analysing the effects of optimism. Chapter 4 of this thesis proposes the methodology that takes into account these factors.

2.1.2 Market Optimism and Corporate Takeovers

The optimism of different market participants, either investors or managers, creates the stock price movement, relative valuation and misvaluation of the firm value. A sizeable stream of literature documents the link between optimism, misvaluation, market movement and corporate takeovers (Nelson, 1959; Gort, 1969; Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006; Bouwman et al., 2009).

Empirically, the correlation between stock market optimism, stock price increase and M&As has been evidenced in the US literature. Studying takeovers from 1895 to 1956, Nelson (1959) evidences that takeovers are clustered during periods of higher stock price. Gort (1969) analyses mergers announced from 1951 to 1959 and argues that economic disturbances create deviation in stock valuation, which drives M&As. Gort (1969) reasons that economic shocks change investors' expectations and their estimates. Moreover, economic shocks lower the predictability of future outcomes and widen the discrepancies of valuations made by different market participants. Past information is the common factor used by investors in their valuation, but it becomes less powerful in predicting the outcomes given the change in the economic environment. Because the common factors is narrower, the variation in predictions among investors is wider. This valuation deviation encourages each party to process the transaction, even though the prospect of the synergies may not be foreseen. In the similar vein, Melicher et al. (1983) conclude that for the period from 1947 to 1977, the share price reflects expectations of economic growth and shapes the M&A market. Jovanovic and Rousseau (2001) examine M&As over the period from 1985 to 1998 and confirm that merger intensity coincides with high market valuations, measured as high P/E ratios on the stock market. In the same vein, by analysing takeover transactions initiated from 1985 to 2008, Gugler et al. (2012) suggest that the volume of assets acquired is larger when the optimism on the financial market is higher. In particular, the authors observe that the peak of aggregate P/E ratios matches the peak in size of the merger market.

The link between optimism, relative valuation and corporate takeovers is also documented (Gort, 1969; Jovanovic and Rousseau, 2001; Andrade and Stafford, 2004; Jovanovic and Rousseau, 2008). The authors use Tobin's Q ratio to investigate takeover transactions. Tobin's Q is the ratio of market value to the replacement cost of capital. It represents the growth prospect or the optimistic view of the firms' future (Jovanovic and Rousseau, 2002, 2008). Jovanovic and Rousseau (2002) prove the coincidence of takeover intensity and the prevalence of optimistic bidders with a high Tobin's Q. Examining 4,256 M&A transactions from 1973 to 1998, Andrade et al. (2001) claim that M&A is positively related to Tobin's Q and explain that, similar to internal investments, conducting takeovers is an efficient way for companies to grow their capital, in response to the potential growth prospects.

Another stream of literature discovers the association between optimism, misvaluation and corporate takeovers. Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) posit that corporate takeovers are driven by stock market misvaluation. The authors contend that investors may be optimistic or pessimistic, which may lead to misvaluation of a firm's value. In contrast, managers effectively analyse the market and conduct M&A transactions to take advantage of the market misvaluation (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). Golbe and White (1988) cover the long period of takeovers from 1900 to 1985. The authors observe that overvaluation triggers corporate takeovers and encourages stock-financing. Rhodes-Kropf et al. (2005) analyse 4,325 bidders who conduct takeover transactions from 1978 to 2001 and conclude that bidders with a high valuation error issue shares to acquire firms with a relatively lower valuation error. The authors also observe that these incidences happen during the period of higher valuation error within the sector, suggesting the aggregate misvaluation on the market. Ang and Cheng (2006) investigate a sample of 3,862 M&A transactions from 1981 to 2001 and find the possibility that firms conduct takeovers is positively related to the level of overvaluation. In the similar school of thought, Dong et al. (2006) explore a sample of 3,732 transactions over the period from 1978 to 2000 and document the association between market valuation and takeovers. They find that bidders are relatively overvalued than targets, suggesting that market optimism is the underlying reason for transactions to be initiated. Likewise, Bouwman et al. (2009) inspect the sample of

2,944 transactions between 1979 and 2002 and assert that high market valuation positively relates to the volume of takeovers.

With respect to the optimism on the bond market and corporate takeovers, Bernanke and Blinder (1992) specify that because of the difference in the attached risks, bonds entail higher premiums than the cash rate and lower premiums than the risky assets. Bondholders also receive interest payments before shareholders. To conduct a takeover transaction, manager needs to choose how to finance it. Managers decide to raise capital in the stock market or the bond market based on a number of factors. They need to consider market perception on the value of the firms, expected returns of the project, their risk preference and the firm's current capital structure. Issuing shares is preferred if managers recognise that the firms are overvalued by the market. When information is completely available and absorbed by the market, price correction will happen, which makes the deal financed by issuing shares today to be cost-efficient. In contrast, debt financing via the bond market can be chosen if firms are undervalued to benefit from the later upward price correction (Shleifer and Vishny, 2003; Gugler et al., 2012).

It is worth noting that the bond market and the stock market are related, suggesting that the optimism in each market influences the other and together they have an impact on takeovers (Fama and French, 1993; Harford, 2005; Gugler et al., 2012). Golbe and White (1988) and Melicher et al. (1983) report that higher stock prices and lower interest rates lead to the increase in the volume of takeovers. They conclude that the change in stock price and bond yield can be used to predict the market for takeovers. Gugler et al. (2012) construct the measurement of bond market optimism or the perceived risks using the Spread between the Federal Funds Rate and the Commercial and Industrial Loan Rate. Gugler et al. (2012) believe that the optimism on the bond market reinforces the optimism on the stock market and can justify takeover clustering. The authors also evidence the popularity of debt finance in some periods of M&As concentration, indicating that the bond market is the choice of managers to finance the transactions. The same incidence has been observed by Harford (2005) when he links the bond market condition to capital liquidity. Harford (2005) uses the Spread between the Federal Funds Rate and the Commercial and

Industrial Loan Rate as the proxy for the ease of financing corporate takeovers or the reduction of transaction costs. Harford (2005) reports that the spread not only correlate with different indicators of the stock market including the book-to-market ratio and the share returns but also is one of the drivers of takeovers. Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) claim that managers use stocks that are overvalued by optimistic investors to acquire the undervalued or less overvalued stocks. In another case, if managers notice that the value of the firms is underestimated by the investors, they will finance the deals by cash. In this way, the optimism on the stock market and the bond market integrate through a feedback relationship and together impact the M&A market.

In the Australian market, the correlation between financial market conditions and takeovers has been reported to some extent. On the link between stock price and M&As, Bishop et al. (1987) examine 1,400 takeover transactions from 1972 to 1985. The authors compare the number of takeovers against the deflated Statex Actuaries Accumulation Index, which is the wealth level achieved by holding the portfolio of securities, including any dividends received. They contend that the index movement depends on estimates of firms' expected future outcomes and positively relates to takeovers. The Bureau of Industry Bureau of Industry Economics (1990) analyse the period of takeovers from 1946 to 1987. The authors advocate that the market power, in the form of price rises, exists prior to the takeover announcements. They evidence that the pre-merger price is higher than the pre-merger cost, suggesting a certain level of market misvaluation. Based on the same dataset, Easton (1994) runs the regression on the annual change in the number of takeovers against contemporaneous and lagged annual share returns. Results support the view that the market for M&As is significantly and positively correlated to the financial market conditions. The author explains that during optimistic periods, companies increase either their internal investment or external expansion. Because of the increasing demand in the economy, stock prices surge and companies' investments become more productive. In a study of takeovers undertaken by Australian firms from 1955 to 1995, Kendig (1997) reports that overreaction is among the drivers of takeovers concentration during the period of financial market booms. More specifically, a larger volume of takeovers is recorded in line with a share price surge and high level of business confidence. To the best of my

knowledge, there is only one study, by Sadeghi and Ngyuen (2013), that estimates the correlation between mergers activities and market misvaluation. Over the period from 2000 to 2007, they find that bidders are valued significantly higher than targets and that bidders issue stocks to finance the transaction.

There are several studies that evidence the impact of the bond market condition on takeovers. On a sample from 1972 to 1996, Finn and Hodgson (2005) examine the relation between M&A transactions, the Statex Actuaries Accumulation Index and the ten-year government bond yield. They find that takeover activity not only shares a common trend with the stock price but also with the fundamental economic factors including the change in the interest rates. Consistent with the Finn and Hodgson (2005) study, on a sample of transactions announced from 1972 to 2004, Duong (2013) reports the significant correlation between interest rate and takeover volume. The author posits that higher interest rates are associated with higher inflation. This association gives a negative signal to the economy, increases the cost of financing via the bond market and hence tightens the M&A market. In contrast, interest reduction loosens financial constraints, strengthens the expectation for prosperous outcomes and consequently facilitates a higher volume of assets acquired.

To sum up, the optimistic attitude of market participants changes the financial market conditions. Specifically, it translates into market price surges, relative valuation and market misvaluation. Moreover, managers and investors simultaneously choose the stock market or the bond market to finance their project or to make investment decisions. As such, optimism is likely to be presented in the aggregate financial market. Although the relation between market optimism and corporate takeovers has been observed, that focus is largely limited to the US and the UK markets. This research presents the Australian evidence as differences in the takeover market and regulatory environment may lead to different findings.

2.1.3 The Impact of Market Optimism on Takeover Premium

Takeover premium presents gains to target shareholders, measured as the percentage difference between the offer price and target share price prior to the

announcement. Prior literature reports significant takeover premiums to targets. As evident from Table 2.1, in the US, the average and median gains to target shareholders over a one or two month period prior to announcement range from 29.52% to 48.65%. In the UK, Antoniou, Arbour, et al. (2008) report a 45% (40%) average (median) bid premium using the target share price four weeks prior to the announcement, which is similar to the US market but substantially higher than in Australia.

Table 2.1 Summary of Empirical Studies on Takeover Premium

Author(s)	Period	Size	Target Price Date	Mean (Median) Takeover Premium
Panel A: Empirical Studies on the Australian Market				
Bugeja and Loyeung (2017)	1997–2004	316	month –2	30% (16%)
Bugeja, Matolcsy, Mehdi, et al. (2017)	2004–2011	272	week –8	71.7% (25%)
Bugeja et al. (2016)	2000–2011	688	day –15, –30, –60	from 25% to 31%
Bugeja (2015)	1997–2008	319	day –30	31%
Aspris et al. (2014)	2000–2009	852	day –20	16.1% (18.28%)
Sadeghi and Ngyuen (2013)	2000–2007	284	day –5	High valued bidders: 35.1%; Low valued bidders: 33.4%
Duong and Izan (2012)	1980–2004	1,184	month –1 and –2	26% (19%); Wave: 24.62% (16.30%); Non-wave: 26.71% (20.14%)
Bugeja (2011)	1996–2006	593	day –60	27.29%
Henry (2005)	1991–2000	440	week –4	28.4%
Maheswaran and Pinder (2005)	1992–2001	133	week –4	32.65%
Kendig (1997)	1955–1995	1,980	month –2	40.3%
Bugeja and Walter (1995)	1981–1989	78	day –60	16.03%
Panel B: Empirical Studies on the US, the UK and Other Markets				
Chen and Lin (2018)	1991–2013	2,996	week –4	34.6%
Fralich and Papadopoulos (2017)	2005–2010		day –1	47.71%
Qiu et al. (2014)	1994–2010	2,198	week –4	41.72% (34.81%)
Alexandridis et al. (2013)	1990–2007	3,691	week –4	45.27 (35.38%)
M. Baker et al. (2012)	1984–2007	7,020	day –30	32.36 (29,52%)
Alexandridis et al. (2010)			week –4	UK: 37.90%; US: 37.50%; Canada: 29.37%; Australia: 30.43%
Bouwman et al. (2009)	1979–2002	2,944	day –30	High valuation: 55.5%; Low valuation: 97.4%
Eckbo (2009)	1973–2002	10,806	day –42	46%
Antoniou, Arbour, et al. (2008)	1985–2004	396	week –4	45% (40%)
Betton et al. (2008)	1980–2002	4,889	day –42	48% (39%)
Levi et al. (2008)	1997–2006	403	week –4	32.8%
Dong et al. (2006)	1978–2000	3,732	day –5	All: 34.4%; Overvalued: 36.3%; Undervalued 32.1%
Jaggi and Dorata (2006)	1994–1998	646	day –20	37.7%
Rossi and Volpin (2004)	1990–1999		week –4	All: 30%; UK: 45.8%; US: 44.3%; Canada: 29.5%; Australia: 32.9%
Wulf (2004)	1991–1999	1,404	day –1	41.1% (34.4%)
Officer (2003)	1988–2000	2,511	day –43	48.65% (41.96%)
Andrade et al. (2001)	1973–1998	4,256	day –3	(37.9%)

A number of studies consider market optimism as an impact of the substantial premiums to target shareholders. Golbe and White (1988) posit that when prospective targets are relatively undervalued, acquirers are willing to pay higher premiums to secure the buy. In the other case, when targets are overvalued, they may be willing to accept lower premiums to expedite the sale. These findings suggest that takeover premium is positively related to the overvaluation from the side of the bidders. Because a firm overvaluation reflects the optimism level on the financial market, it can be interpreted that takeover premium increases with the higher level of optimism. Likewise, Dong et al. (2006) find a significant lower premium, on average -8.6% , for higher valued targets, whereas higher valued bidders are positively related to takeover premium, with a difference of 4.2% for the whole sample. In contrast, Bouwman et al. (2009) find that deals conducted in a high valuation market have a significantly lower premium than that in a low valuation market. Notably, the premiums reported are relatively high compared with other studies, being 55.5% for deals in high market optimism and 97.4% in low market optimism. This may be because instead of directly using offer price and target share price, Bouwman et al. (2009) calculate the premium as the net transaction value minus the target's market value of equity, normalised by the target's market value of equity 30 days prior to the merger announcement. The net transaction value is the transaction value of the deal minus liabilities assumed by the acquirer. Perhaps the difference in sample and methodology leads to the contrasting findings of the previous studies.

In Australia, prior studies report positive but lower gains for target shareholders in comparison with other markets. Aspris et al. (2014), Bugeja and Walter (1995), Bugeja (2011), Bugeja (2015), Bugeja and Loyeung (2017), Bugeja, Matolcsy, Mehdi, et al. (2017), Duong and Izan (2012), Henry (2005), Humphery-Jenner and Powell (2011), Kendig (1997) and Maheswaran and Pinder (2005) report target shareholders earn average premiums from 18% to 40.3% . The findings are consistent with a cross-country analysis of M&As from 1990 to 1999 by Rossi and Volpin (2004), which reports that the premiums paid by Australian bidders are 30% on average. The corresponding figures are 33% in Canada, 46% in the UK and 44% in the US.

However, few Australian writers draw systematic research into the impact of market optimism and takeovers. To the best of my knowledge, the following studies are found to be related to market optimism to some extent. Kendig (1997) reports that from 1955 and 1995, takeover premium is positively and significantly related to the period of high merger concentration, which may be driven by overreaction, financial market booms and increasing business confidence. Sadeghi and Ngyuen (2013) record that higher valued bidders paid a higher bid premium five days prior to the announcement, at 35.1% compared to the 33.4% premium paid by lower valued bidders. Accordingly, the authors conclude that overvaluation of bidder and undervaluation of target are associated with a higher premium. However, Duong and Izan (2012) report a different result. Comparing the final offer price to the target share price one month and two months prior to the announcement, they observe a lower takeover premium of 24.62% and 16.30% in the period of takeover concentration compared with 26.71% and 20.14% in the non-wave period. Hence, the overpayment hypothesis is not supported in the Duong and Izan (2012) study. The authors maintain that takeover clustering associates with lower interest rate and inadequate target screening by acquiring firms. It should be noted that these studies relate differently to market optimism at some distance and from different angles. Sadeghi and Ngyuen (2013) refer to the expectation on the future change in valuation of bidders and targets at the individual level, whereas Kendig (1997) and Duong and Izan (2012) consider the market-wide effects, but they focus on merger intensity, which may not necessarily coincide with market optimism.

In short, despite the numerous and consistent evidence on substantial premiums offered to target shareholders, the extant literature on target gains in different market conditions is relatively limited and varied. The contrasting findings may lie in the different markets studied, the different sample settings and time periods covered, as well as the different methods of calculation. Moreover, the influence of market conditions is largely reflected as the relative valuation between bidders and targets on the stock market at the individual level instead of accounting for the effect at the aggregate level. Among the studies that analyse the impact of optimism at market level, market optimism is either considered to be optimism on the stock market or is treated as the separate optimism on the stock market and the bond market (Bouwman

et al., 2009; Petmezas, 2009; Croci et al., 2010; Goel and Thakor, 2010; Gugler et al., 2012). Because the stock market and bond market are alternatives to investors and managers, this study incorporates the optimism on the stock market and the bond market to analyse its impact on M&As. To the best of my knowledge, a direct investigation of the impact of market optimism on takeover premium in the Australian takeover market has not been conducted. In this thesis, the possibility of market optimism as an explanation for the sizeable premiums offered to target shareholders is analysed. With a number of distinguishing features in the present market and regulations as presented in Section 1.2, it is hoped that this research will contribute to a deeper understanding of takeover.

2.1.4 The Impact of Market Optimism on Bidder Performance

Given the significance of takeovers both at the corporate level and the wider economy level, bidder performance as the result of the takeover decision has been extensively investigated in the literature (Gaughan, 2011; DePamphilis, 2015). However, studies on the effect of market optimism on bidder performance are relatively scarce. This section briefly reviews prior findings on bidder announcement returns and long-term returns in the general market condition and in the optimistic condition.

2.1.4.1 Bidder Announcement Returns

Although it is unanimously presented that targets gain a substantial premium from takeovers, there is ambiguous evidence on the returns of the acquirers around the announced date. As can be seen in Table 2.2, in the US market, there are a number of researchers who report the minor positive announcement gains to bidders, ranging from 0.18% to 2% (Jensen and Ruback, 1983; Smith and Kim, 1994; Moeller et al., 2004; Bhagat et al., 2005; Moeller et al., 2005; Ang and Cheng, 2006; Masulis et al., 2007; Golubov et al., 2012; Harford et al., 2012). Similarly, in the UK market, a positive abnormal return to acquiring firms of 1.26% on average over the five-day window is reported (Antoniou et al., 2007).

Table 2.2 Summary of Empirical Studies on Bidder Announcement Returns

Author(s)	Period	Size	Benchmark	Cal.	Event Window	Bidder Announcement Returns (%)
Panel A: Empirical Studies on the Australian Market						
Akhtar (2017)	2000–2010	183	MM & Control	CAR	From [-1, 1] to [-20, 20]	Positive correlation between strong bull market and bidders returns
Bugeja, Matolcsy, Mehdi, et al. (2017)	2004–2011	272	MAM	CAR	[-1, 1]	0.06
Shams et al. (2013)	2000–2010	8,660	MM	CAR	[-1, 1]	1.28
Bugeja et al. (2012)	2000–2007	177		CAR	[-1, 0]; [-1, 1]; [-2, 2]	0.37; 0.7; 0.22
Chan and Emanuel (2011)	1999–2005	80	MM	CAR	[-5, 5]	-2.4
Humphery-Jenner and Powell (2011)	1993–2007	1,900	MAM	CAR	[-1, 1]	1.52
Bugeja and da Silva Rosa (2010)	1996–2003	205	MM	BHAR	[-1, 1] month	1996–1999: -2.91*; 2000–2003: -4.09*
Porter and Singh (2010)	2000–2006	76	MM	CAR	[-1, 1]; [-5, 5]; [-10, 10]	0.37; 1.26; 1.61
Christopher and Zicheng (2008)	1990–2005	529	MM	CAR	Announcement month	All: 2.2; High B/M bidders: 1.9; Low B/M bidders: 2.5
Diepold et al. (2008)	1996–2003	31	MM	CAR	[-1, 1] ; [-3, 7]	0.05; -1.17
Shekhar and Torbey (2005)	1994–2001	118	MM	CAR	[-1, 1]	1.02
da Silva Rosa et al. (2004)	1990–1998	140	MM	CAR	[-2, 2]	Cash: 2.70*; Equity/mixed: 1.11
Simmonds (2004)	1976–1995	998	MM	CAR	[-3, 3]	-1.6
Bugeja and Walter (1995)	1981–1989	78	MAM	CAR	[-1, 1]; [-10, 10]; [-20, 20]	0.68; 0.91; 1.26
Casey et al. (1987)	1981–1986		MM	CAR	[-1, 1]	-1.71
Walter (1984)	1966–1972	368	MM	CAR	[-2, 2] weeks	1.3
Panel B: Empirical Studies on the US, the UK and Other Markets						
Chen and Lin (2018)	1991–2013	2,996	MM	CAR	[-2, 2]	0.3
Dahya et al. (2016)	1989–2007	1,236	Modified MM	CAR	[-1, 1]	from 0.29 to 1.49
Krolkowski (2016)	1994–2010	459	MM	CAR	[-2, 2]	High pay-for-performance bidders: 0.99; Low pay-for-performance bidders: -1.21
Ishii and Xuan (2014)	1999–2007	539	MM	CAR	[-1, 1]; [-2, 2]; [-3, 3]	-1.97; -1.92; -2.2

Author(s)	Period	Size	Benchmark	Cal.	Event Window	Bidder Announcement Returns (%)
Yaghoubi et al. (2014)	1981–2007	3,101	Size & B/M control	CAR	[-1, 1]	-1.1*
Alexandridis et al. (2013)	1990–2007	3,691	MM	CAR	[-1, 1]	-1.51*
Golubov et al. (2012)	1996–2009	4,803	MM	CAR	[-2, 2]	0.369
Harford et al. (2012)	1990–2005	3,935	MAM	CAR	[-1, 1]	0.86
Ahn et al. (2010)	1998–2003	1,207	MM		[-1, 0]; [-1, 1]; [-2, 2]; [-3, 3]	-1.007*; -1.304*; -1.463*; -1.878*
Alexandridis et al. (2010)			MM	CAR	[-2, 2]	UK: -1.58*; US: 1.56*; Canada: -1.54*; Australia and NZ: 1.04
Croci et al. (2010)	1984–2003	2,973	MAM	CAR	[-2, 2]	High valuation: 1.21; Low valuation: 0.34
Bouwman et al. (2009)	1979–2002	2,944	MM	CAR	[-1, 1]	All: -0.48*; High valuation: -0.04; Low valuation: -1.31
Petmezas (2009)	1984–2003	2,973	Modified MM	CAR	[-2, 2]	High valuation: 1.66; Low valuation: 0.41
Wang and Xie (2008)	1990–2004	396	MM	CAR	[-5, 5]	-2.91*
Antoniou et al. (2007)	1984–2004	1,401	MA	CAR	[-2, 2]	1.26*
Masulis et al. (2007)	1990–2003	3,333	MM		[-2, 2]	0.215
Ang and Cheng (2006)	1981–2001	3,862	B/M control	BHAR	[-1, closed]	Overvalued: 4.47*; Undervalued: 1.20
Dong et al. (2006)	1978–2000	3,732	MM	CAR	[-1, 1]	Low Q: -0.3; High Q: -1.9
Bhagat et al. (2005)	1962–2001	1,018	MM	CAR	[-5, 5]	0.18
Moeller et al. (2005)	1980–2001	12,023	MM	CAR	[-1, 1]	1.1
Moeller et al. (2004)	1980–2001	12,023	MM	CAR	[-1, 1]	-1.02*
Fuller et al. (2002)	1990–2000	3135	MA	CAR	[-2, 2]	1.77*
Andrade et al. (2001)	1973–1998	4,256	MM	CAR	[-1, 1]; [-20, closed]	-1.5*; -6.3
Datta et al. (2001)	1993–1998	1719	MM	CAR	[-1, 0]	0.02
Mulherin and Boone (2000)	1990–1999	1,305	MM	CAR	[-1, 1]	-0.37*
Walker (2000)	1980–1996	278	MM	CAR	[-2, 2]	-0.84*
Franks et al. (1991)	1975–1984	399	MM	CAR	[-5, 5]	-1.02*
Servaes (1991)	1968–1980	101		AR	[-5, 5]	All: -0.4; Low Q bidder: -1.6; High Q bidder: 3.5
	1972–1987	704	MM	AR	[0, closed]	All: -1.07*; High Q bidder: 6.36; High Q bidder with low Q target: 10.8

MM: market model; MAM: market adjusted model; B/M: book-to-market; BHAR: buy-and-hold abnormal returns; CAR: cumulative abnormal returns; * denotes statistical significance at the 10% level or better.

In contrast, other studies report the negative announcement returns to bidders. Ahn et al. (2010), Dong et al. (2006), Franks et al. (1991), Ishii and Xuan (2014), Kaplan and Weisbach (1992), Lang et al. (1991) Mulherin and Boone (2000), Servaes (1991) and Wang and Xie (2008) claim that the average negative returns to bidders range from -1.97% to -0.37% from one day to eleven days surrounding the announcement. Likewise, in the UK takeover market, Andrade et al. (2001) record an average loss of -0.07% to bidders three days surrounding the announced date over the sample during the period 1973 to 1998. Alexandridis et al. (2010) survey worldwide takeover markets from 1990 to 2007. The authors find that US, UK and Canadian bidders suffer an average loss of -1.34% , -1.58% and -1.54% respectively, which are attributed to the higher premium paid.

Given the contradictory and inconclusive evidence on the announcement returns to acquiring firms, the extant literature has documented optimism as a possible explanation. Jovanovic and Rousseau (2002), Lang et al. (1991) and Servaes (1991) examine the difference in announcement returns between high value and low value bidders. Analysing 101 takeovers that occurred from 1968 to 1986, Lang et al. (1991) record an average negative abnormal return of -0.4% over the five-day window for the overall sample. Given the Q ratio is the ratio of market value to the replacement cost of capital (Hayashi, 1982; Jovanovic and Rousseau, 2002), Lang et al. (1991) specify that this negative return is largely driven by low Q bidders who earn -1.6% , which crosses out the positive abnormal gains generated by high Q bidders. Servaes (1991) inspects 704 transactions conducted between 1972 and 1987. The author claims that bidder returns are 6.36% higher when they have high Q ratios. These findings suggest that bidder announcement returns are positively related to their valuation and optimistic view on the future performance. In contrast, Dong et al. (2006) report an average negative abnormal return of -0.3% three days surrounding the announcement for low Q bidders. This loss is more substantial for high Q bidders at -1.9% . However, the contrasting findings may be due to the differences in sample selection and variable measurement. Lang et al. (1991) and Servaes (1991) restrict their samples to successful deals and cover the earlier period whereas Dong et al. (2006) do not restrict their sample to the outcome of the offers and include very few observations within the timelines of the Lang et al. (1991) and Servaes (1991) studies. Dong et al. (2006) state

that the evidence for the Q theory is more pronounced in the pre-1990 period instead of being contradiction for the whole sample period.

Another line of literature provides evidence that market overvaluation, which reflects the optimism in the financial market, is the determinant factor of bidder announcement returns. Ang and Cheng (2006) observe that these overvalued bidders outperform their counterparts by earning average abnormal returns of 4.47% from one day prior to the announcement to the closed date. Similarly, analysing 6,259 mergers processed from 1982 to 2001, Rosen (2006) reports that acquisitions conducted during a hot market create higher abnormal returns compared to that due to high investor sentiment. The author argues that in hot markets, investors may be overly optimistic and managers take advantage of the optimism of investors by issuing shares to finance the deals. Because overoptimism affects the market's response to takeover announcements, there is an autocorrelation in the announcement returns to bidders. Hence, the positive abnormal returns to bidders may be simply the reaction of the market to the announcement but not necessarily relate to the quality of the deals. Bouwman et al. (2009) claim higher abnormal announcement returns of 1.46% over the three-day window to bidders processing the transaction in high optimistic markets, whereas negative figures of -0.41% and -1.27% are recorded in low and normal market conditions. Bouwman et al. (2009) conclude that the market tends to react more positively to takeover announcements during high valuation markets than in low valuation markets. Likewise, Petmezas (2009) studies 2,973 successful M&As in the UK from 1984 to 2003 and reports that transactions initiated during hot markets produce higher abnormal returns than those taken place during cold periods. The author demonstrates that over the five days surrounding the announcement, bidders conducting the deals in bullish markets earn significant gains of 1.66%, while an average insignificant gain of 0.41% is recorded for the bear market. Studying 3,223 transactions in the UK from 1990 to 2005, Croci et al. (2010) report similar results, in that M&As in high valuation markets generate gains of 1.21% to bidders over the five-day window, compared with 0.34% returns from the deals that happened in the low optimism period.

In Australia, evidence on the favourable market's response to takeover announcements seems to be prevalent. Bugeja and Walter (1995), Bugeja et al. (2012), Bugeja, Matolcsy, Mehdi, et al. (2017), da Silva Rosa et al. (2004), Diepold et al. (2008), Dodd (1976), Humphery-Jenner and Powell (2011), Porter and Singh (2010), Shams et al. (2013), Shekhar and Torbey (2005) and Walter (1984) observe average bidder gains from 0.05% to 1.3% three days to ten days surrounding the announcement. By contrast, Bugeja and da Silva Rosa (2010), Casey et al. (1987) and Chan and Emanuel (2011) state that bidders suffer from an average loss of -4.09% to -2.4% surrounding the announced date.

Despite the relatively fruitful evidence on the market reaction to the takeover announcement, the influence of optimism is less established. Christopher and Zicheng (2008) use a sample of 529 acquisitions from 1990 to 2005 to assess the valuation effect at the firm level. The authors find that high book-to-market bidders earn 1.9% during the announcement month, which is surpassed by low book-to-market bidders who generate an average abnormal return of 2.5%. However, the difference is not statistically significant. Bidding firms with strong six-month prior period returns generate positive, significant abnormal returns of 4.7% during the announcement month compared with the loss of -0.3% of low past performance firms. Regarding the effect at the market level, I am only aware of the study of Akhtar (2017) that differentiates announcement returns to bidders in bull and bear markets. Based on the sample of 147 firms who announce takeover deals from 2000 to 2010, Akhtar (2017) reports a positive correlation between the strong bull market and bidder announcement returns. However, Akhtar (2017) uses the original closing price of the daily All Ordinaries Index to distinguish bull and bear markets. This method may lead to classifying a period of time to be a hot market simply because it belongs to a falling or rising period (Bouwman et al., 2009). Moreover, Akhtar (2017) does not include the impact of the bond market condition in classifying the financial market condition and analysing its effect on bidder announcement returns, a feature hardly found in the Australian takeover literature.

The studies presented thus far show mixed findings on announcement returns to bidders as well as on the impact of market optimism in the US and the UK. However,

the impact of market optimism as a combination of optimism in the stock market and the bond market remains relatively little known, especially for the Australian market.

2.1.4.2 Bidder Long-term Returns

There have been great attempts to evidence and explain long-term performance of acquiring firms. However, findings have been inconsistent. As evident from Table 2.3, earlier studies of Eckbo (1986), Franks et al. (1991) and Mandelker (1974) report positive average abnormal returns to US bidders from 0.5% to 6.4% during the one- to three-year post-takeover period. In the UK market, Chatterjee (2000) claims an average positive return of 5.4% to bidders in one year from the announcement but negative returns of -4.1% and -17.9% in the two-year and three-year post-takeover periods. In contrast, the incidence of wealth destruction seems to be more widely observed. In the US market, Agrawal et al. (1992), Asquith et al. (1983), Betton et al. (2008), Chen and Lin (2018), Datta et al. (2001), Dodd and Ruback (1977), Hayward and Hambrick (1997), Malatesta (1983) and Mitchell and Stafford (2000) find that returns to acquiring firms are significantly worse than the non-acquiring firms. They observe consistent loss to the shareholders of the acquiring firms, ranging from -11% to -0.51% over the one- to three-year period after announcement. In the UK market, Kennedy and Limmack (1996) and Bi and Gregory (2011) document a significant loss of -5.03% to -0.68% to bidders within the two- to three-year post-takeover period.

Table 2.3 Summary of Empirical Studies on Bidder Long-term Returns

Author(s)	Period	Size	Benchmark	AR Cal.	Event window (months)	Bidder Long-term Returns (%)
Panel A: Empirical Studies on the Australian Market						
Ratcliffe et al. (2017)	1996–2012	149	Size, B/M control	BHAR	[0, 12]; [0, 24]; [0, 36]	−2.95*; −8.21*; −12.27*
Duong and Izan (2012)	1980–2004	1,184	Size, survival control	BHAR	[0, 12]; [0, 18]	All: from 0.39 to 1.52; Wave bidders: −2.91* and −2.82*; Non-wave bidders: 2.89 and 3.34
Chan and Emanuel (2011)	1999–2005	80	Survival control	BHAR	[0, 36]	−3.7
da Silva Rosa et al. (2006)	1993–2002	1,225	MM	CAR	[0, 12]; [0, 24]; [0, 36]	from −1.23 to −0.02
da Silva Rosa et al. (2000)	1988–1996	240	Size, survival control	Cf.BHR	[0, 24]; [0, 36]	21.23 25.51
Brown and da Silva Rosa (1998)	1974–1996	731	Size, survival control	Cf.BHR	[6, 26]	74.14, which is lower than non-bidding firms
Walter (1984)	1966–1972	572	MM	CAR	[1, 100] weeks	All: 2.00; Successful: −1.5*; Unsuccessful: 21.3*
Panel B: Empirical Studies on the US, the UK and other markets						
Chen and Lin (2018)	1991–2013	2,996	Size, B/M control	BHAR	[0, 12]	−17
Krolikowski (2016)	1994–2010	459	Size, B/M control	BHAR	[0, 60]	High pay-for-performance bidders earn 5.52% annualized BHARs than low pay-for-performance bidders
Alexandridis et al. (2013)	1990–2007	3,691	CTP	CAR	[0, 12]; [0, 36]	−0.51 −0.54
Fu et al. (2013)	1985–2006	1,990	MA	BHAR	[0, 24]; [0, 36]; [0, 60]	Acquirers: −19.8, −28.9; −21.4 Non-acquirers: −12.4, −15.1; −3.4
Bi and Gregory (2011)	1985–2004	669	Size control	BHAR	[0, 24]; [0, 36]	−0.68 −1.54%
Croci et al. (2010)	1984–2003	2,973	Size, B/M control	BHAR	[0, 36]	All: −4.23; High valuation: −18.03 Low valuation: 1.55
Bouwman et al. (2009)	1979–2002	2,944	Size, B/M control	BHAR	[0, 24]	All: −7.22*; High valuation: −11.32; Low valuation: −3.28
Petmezas (2009)	1984–2003	2,973	Fama–French	CAR	[0, 12]; [0, 36]	All: 0.03; High valuation: −0.16; Low valuation: −0.10 All: −0.54*; High valuation: −0.37*; Low valuation: −0.96*

Author(s)	Period	Size	Benchmark	AR Cal.	Event window (months)	Bidder Long-term Returns (%)
Betton et al. (2008)	1980–2003	4,889	Matched control CTP	BHAR	[0, 60]	EW: 21.9*; VW: -17.1*
Ang and Cheng (2006)	1981–2001	3,862	B/M control	CAR	[0, 12]; [0, 24]	EW: 4.8; VW: 1.2
Moeller et al. (2004)	1980–2001	12,023	4 factor model CTP	BHAR	[0, 36]	2.10; -0.58; -1.11
Sudarsanam and Mahate (2003)	1983–1995	519	Size, B/M control	BHAR	[2, 36]	6.4 0.018 All: -14.76*; Glamour: from -47 to -17; Value: from -9 to -2
Andrade et al. (2001)	1973–1998	4,256	MM	CAR	[0, 36]	EW: All: -5.0*; Growth: -6.5; Glamour: -2.9 VW: All: -1.4; Growth: -7.2; Glamour: -1.1
Datta et al. (2001)	1993–1998	1,719	Size, B/M control	BHAR	[0, 36]	-9.31
Chatterjee (2000)	1977–1990	153	MA	CAR	[0, 12]; [0, 24]; [0, 36]	5.4; -4.1; -17.9
Mitchell and Stafford (2000)	1961–1993	2,068	Size, B/M control CTP	BHAR	[0, 36]	-1.0 -7.2*
Rau and Vermaelen (1998)	1980–1991	3,169	Size, B/M control	CAR	[1, 12] [1, 36]	All: -1.76*; Growth: 1.83; Glamour: -6.25* All: -4.04*; Growth: 7.64*; Glamour: -17.26*
Hayward and Hambrick (1997)	1989; 1992	106	MM	CAR	[1, 12]	-11
Loughran and Vijh (1997)	1970–1989	947	Size, B/M control	CAR	[0, 60]	All: -6.5; Overvalued: -25; Undervalued: 61.7
Kennedy and Limmack (1996)	1980–1989	345	Size control	CAR	[1, 23]	-5.03*
Agrawal et al. (1992)	1955–1987	937	MM, size control	CAAR	[1, 12]; [1, 24]	-1.53; -4.94*
Franks et al. (1991)	1975–1984	399	CTP Size control	CAR	[0, 36]	1.8
Eckbo (1986)	1964–1983	1,138	MM	CAR	[-1, 12]	1%
Asquith et al. (1983)	1962–1976	196	MM	CAR	[0, 12]	-7.2*

MM: market model; BHAR: buy-and-hold abnormal returns; CAR: cumulative abnormal returns; CAAR: cumulative average abnormal returns; CTP: calendar time portfolio; * denotes statistical significance at the 10% level or better.

Among the prior studies, market optimism has been demonstrated to be a determining factor of acquiring firm performance. Some researchers exhibit the effect of optimism by comparing the performance of the glamour firms and the value firms. Glamour firms are firms which experienced increasing share price in the past. They experience high sales growth and earnings that results in a relatively high P/E ratio compared to the book-to-market ratio. In contrast, value firms have a low share price performance with relatively high book-to-market ratios (Rau and Vermaelen, 1998). Rau and Vermaelen (1998) investigate 3,169 M&A transactions announced from 1980 and 1991 and report an average loss of -2.58% . However, the mean negative abnormal returns are largely attributable to glamour firms. More specifically, within three years post-announcement, glamour firms suffer a loss of -17.26% while value firms create positive returns of 7.64% . The authors posit that the outperforming past performance of glamour firms may lead to over optimism among managers and affect the quality of the takeover decision. In contrast, value bidders aim at survivorship and are more careful in evaluating the potential synergy. Consequently, markets respond favourably to the announcement of value bidders. Andrade et al. (2001) observe mean negative abnormal returns of -6.5% for growth bidders and a less severe loss of -2.9% for value bidders. This view is supported by Sudarsanam and Mahate (2003) who study a sample of 519 takeover deals in the UK from 1983 to 1995. The authors use the P/E ratio as the measurement of the investors' valuation attitude to bidders. Firms are classified as glamour if they have high P/E ratios and as value firms if they have low P/E ratios. The value firms are found to outperform the glamour firms within three years post-takeover period. In particular, glamour firms suffer significant losses ranging from -47% to -17% , while these figures are less extreme for value firms, which are in the -9% to -2% range. Sudarsanam and Mahate (2003) explain that glamour firms' managers may be overly optimistic and their shares may be overvalued.

With the same purpose of explaining acquirer long term performance, several studies look at the effect of market valuation. Analysing 947 transactions undertaken in the US market between 1970 to 1989, Loughran and Vijh (1997) record an average insignificant five-year post-takeover return of -6.5% . They further find that bidders whose shares are overvalued significantly underperform with a loss of -25% compared to the gains of 61.7% of the undervalued firms. Rosen (2006) reports insignificant

average abnormal returns to bidders of -6.66% over the three-year post-takeover period. Apart from confirming positive market reaction to the takeover announcement, the author claims that the market momentum fades in the long term. As a result, bidders making the deal in a hot market perform “no better and possibly worse” than those conducted in a cold market (Rosen, 2006, p. 989). A hot market is defined by Rosen (2006) as a market in which other merger deals have reacted favourably or a stock market with a rising price. Ang and Cheng (2006) report significantly lower bidder returns of -0.58% after two years and -1.11% after three years from announcement compared with the positive gains generated by non-overvalued bidders. Bouwman et al. (2009) claim an average three-year post-takeover returns of -7.22% to bidders. This loss is largely driven by transactions conducted in high valuation markets, with losses of -11.32% , whereas a less severe loss of -3.28% is recorded for those undertaken in the low valuation market. Petmezas (2009) finds that acquiring firms who initiate M&A transactions during high valuation periods create favourable abnormal returns in the short term, but in the long term they experience negative abnormal returns. Likewise, Croci et al. (2010) report bidders have an average negative return of -4.23% over the 36-month post-announcement period. They find that bidders experience an average loss of -18.03% if they process the deal in a high valuation market while firms who made the deal in a low valuation market gain a mean return of 1.55% . Fu et al. (2013) study 1,990 M&A transactions from 1985 to 2006 and report that overvalued acquirers significantly underperform their overvalued non-bidding firms. The negative abnormal returns in two years, three years and five years post-announcement are recorded at -19.8% , -28.9% and -21.4% respectively for acquirers while losses to non-acquirers are less extreme at -12.4% , -15.1% and -3.4% for the corresponding periods.

Together, the above studies claim that both the valuation variance between bidders and targets and the market misvaluation influence bidder performance in the long term. As reviewed earlier, the relative valuation between targets and bidders and misvaluation are the result of the optimism of the market’s participants, suggesting that market optimism can explain returns of acquiring firms.

Similar to the US and the UK markets, findings on long-term returns of Australian bidders are not consistent. Several studies find positive abnormal returns to acquiring firms. Walter (1984) reviews 572 M&A transactions announced between 1966 and 1972 and reports an abnormal return of 32.7% for 100 weeks post-announcement. Brown and da Silva Rosa (1998) observe an average buy-and-hold abnormal return to acquiring firms over the period from 6 months to 36 months post-announcement of 74.14%. However, the authors claim that this performance is surpassed by that of non-bidding firms. Studying the period from 1988 to 1996, da Silva Rosa et al. (2000) document consistent positive abnormal returns to bidders across different windows from three months prior to announcement to 36 months after announcement. The abnormal returns vary from 19.04% to 52.54%. Duong and Izan (2012) report positive abnormal returns to bidders, ranging from 0.39% to 1.52% over the 12-month and 18-month post-takeover period. However, the average returns may be largely affected by extreme values because negative median returns from -2.06% to -5.05% are observed.

Other studies on the Australian takeover market present a contrasting result. da Silva Rosa et al. (2006) carry out a number of investigations into the abnormal returns to bidders over the six-month to three-year period after the announced date for 1,225 M&As conducted from 1993 to 2002. The authors document negative returns across almost all windows for both successful and unsuccessful M&As, ranging from -1.23% to -0.02% . There are only two cases in which unsuccessful bidders earn positive insignificant abnormal returns of 0.36% and 0.47% for the 24-month and 36-month post-announcement periods. Chan and Emanuel (2011) examine 80 M&A transactions between 1999 and 2005 and record a negative abnormal return of -0.37% to acquirer shareholders during the three-year post-takeover period. Ratcliffe et al. (2017) report Australian Real Estate Investment Trusts bidders earn negative and significant BHARs over the one-year, two-year and three-year periods of -2.95% , -8.21% and -12.27% , respectively.

Given the inconsistent and contradictory findings on long-term returns to bidders, extensive evidence in other markets suggest that market optimism can explain the long-term performance of acquiring firms to some extent. In the Australian

literature, a search of the literature reveals few studies that directly investigate the correlation of market optimism and long-term performance of acquiring firms. To the best of my knowledge, the work of Duong and Izan (2012) is the only study that compares the performance of the bidder conducting the deals during wave and non-wave period. The authors claim that wave bidders respectively lose -2.91% and -2.82% over the 12-months and 18-months post-announcement period while non-wave bidders earn positive abnormal returns of 2.89% and 3.34% during the corresponding window. Duong and Izan (2012) find that lower interest rates and higher economics expectation drive the merger wave. According to Bernanke and Gertler (1999) and Lown et al. (2000), lower interest rates and higher economic expectation reflect the market optimism. Hence it can be interpreted that optimism relates to merger waves and the performance of acquiring firms to some extent. However, because merger waves and market optimism do not fully coincide, a study on the relation between market optimism and bidder performance may reveal interesting findings.

In conclusion, when market optimism is taken into account, it is either considered to be the optimism in the stock market or is treated separately as the optimism in the stock market and the optimism in the bond market. This study incorporates the optimism on both the stock market and the bond market to analyse the impact of optimism on takeover premiums and bidder announcement returns and long-term returns. The empirical work presented in this thesis provides one of the first investigations and new insights into this impact in the Australian takeover market.

2.2 THE IMPACT OF CEO PAY DISPARITY ON TAKEOVER PREMIUM AND BIDDER PERFORMANCE

Conducting a takeover is a complicated process that has invoked a great deal of prior research to reveal the reasons behind the mixed findings in takeover premium and bidder performance. The previous section presents the strand of literature that considers takeover as a product of market optimism, formed by the attitude of different related parties. However, a takeover is a significant corporate investment that not only relies on the market and economy-wide environment but also depends on the

individual manager of the firm. This section reviews another line of thought, one which recognises a takeover as a product of the CEO's decision. More specifically, this section highlights the prevailing view that CEOs are key factors in shaping the takeover outcomes. Furthermore, this section discusses the interpretation of CEO pay disparity and its relevance in assessing the takeover decision. This section offers critical insights into the impact of CEO pay disparity on takeover premium and bidder performance, revealing the gap that this thesis expects to fill in.

2.2.1 CEOs and Corporate Takeovers

2.2.1.1 CEOs and Corporate Decisions

The notion that a firm's strategies and outcomes largely depend on powerful players in the organisation has a long tradition in economics, finance and management literature. The CEO is the executive who has overall responsibility for the conduct and performance of the entire organisation (Finkelstein and Hambrick, 1996). The essential role of the CEO in the corporate decision-making process has already been widely documented (Finkelstein and Hambrick, 1996; Bertrand and Schoar, 2003). CEOs impose their personality, style, attitude and philosophy when managing the firms, thus imprinting their personal mark on the decisions they make (Bertrand and Schoar, 2003). This view relies on the early studies of Cyert and March (1963) and March and Simon (1958). These authors contend that complex corporate decisions are mainly the product of behavioural elements, instead of serving the economic optimisation purpose. Bounded rationality, multiple and conflicting interests, and varying motivations of decision makers are cited as limiting the possibility of corporate decisions being made on an organisational economic optimisation basis. March and Simon (1958) contend that each decision maker imposes their individual knowledge or assumptions about future outcomes, about different alternatives and the attached consequences. These personal marks are exposed to the ongoing stream of possible stimuli, both within the firm, in relation to other firms and under the macro-economic environment. In this situation, managers act as the filter of the influences of the outside factors on the internal resources. Consequently, corporate decision outcomes depend on how decision makers perceive the situation and how they apply their knowledge

and management philosophy to the decision-making process (Scott and Mitchell, 1976).

In the same vein, Hambrick and Mason (1984) theorise that managers' cognitive base and values are the explanatory variables of corporate strategic choices through which the firm performance is determined. Quigley (1994) provides supporting evidence that both the vision and ability of a CEO to form corporate strategies are vital to the firm performance. This view is supported by Rotemberg and Saloner (2000) who write that CEOs place their influence heavily on the strategic direction of the organisation. In other words, CEOs have the central role in leading or failing to direct effective strategic change. Bertrand and Schoar (2003) provide an in-depth analysis of management style, showing its relevance to corporate activities. Drawing on the presence of manager fixed effects, the authors demonstrate that a substantial degree of the heterogeneity in corporate decisions can be explained by managers' characteristics. Moreover, the authors claim that manager fixed effects are strongly correlated to the performance of the organisation. Collectively, the evidence presented in this section suggests that manager characteristics, values and preferences play a vital role in a wide range of corporate decisions.

2.2.1.2 CEOs and Corporate Takeovers

Literature has identified executive management as the key driver of the takeover process and outcomes (Roll, 1986; Haspeslagh and Jemison, 1991; Haunschild, 1994). A takeover has a unique potential to transform the organisation. Takeovers help firms to strengthen market positions, to gain benefits from integrating resources and sharing capabilities, to bring in new competences and to create the opportunity to leverage existing capacities into a higher level. Haspeslagh and Jemison (1991) list four main challenges that companies would encounter when conducting a takeover. Firstly, M&As are strategic decisions that can both reinforce and alter the corporate direction. For this reason, managers need to ensure that takeovers are consistent with the firm's strategy or should be embraced as a new potential. Secondly, processing the deal requires companies to develop a quality decision-making process with meaningful justification in terms of the costs, benefits and risks involved. Thirdly, the challenge

of managing the post-acquisition integration process to realise the expected outcomes depends on the willpower and capabilities of the managers. Finally, takeovers challenge a manager's capacity for learning under circumstances outside their regular contexts. The extensive involvement of managers is required because of the complex nature of the takeover process. The sources of a takeover's complexity are the time constraints to make decisions, the publicity and secrecy of information surrounding the events, and the diverse specialisations needed to process the deals (Davidson, 1981; Sitkin and Pablo, 2004).

The critical role of CEOs on corporate takeovers has been assessed based on the influence of their values, cognitive model and other personality factors. Firstly, managers act accordingly to their values while managing the organisation (Rawls and Nelson Jr, 1975; Finkelstein and Hambrick, 1996). Manager's values are the desire for themselves, for the organisation and for the society. Hambrick and Brandon (1988) describe different dimensions of executive values: the managers' perceptions towards the social system; towards obligation and loyalty; towards fact-based, emotion-free decisions and actions; towards the change, the new and the different; and towards the level of power to control situation and people. Managers' values affect corporate choices via the selection a of course of action. Moreover, values influence a manager's vision and affect the search for and the interpretation of information. According to Jensen and Ruback (1983), there are two opposite views on how managers set their values. They argue that managers are the agents of shareholders in a relationship of conflicting interests. There are two potential possibilities. If managers act for the interest of the shareholders, they will aim at maximising shareholder wealth. If managers pursue their own objectives, they may engage in M&As at the expense of shareholders. Eisfeldt and Rampini (2006), Jovanovic and Rousseau (2001) and Mitchell and Mulherin (1996) are among the researchers who support the view that managers act for the interest of the shareholders. They claim that bidders' managers conduct value-creating deals and create synergies through economies of scale and scope, tax savings or management replacement. Therefore, a takeover is an effective means to transfer assets among firms for a more efficient use across the economy.

In contrast, Jensen (1986a) contends that a major cause of acquisitions is the agency conflicts on the free cash flow payout. The author proves that managers have the tendency to spend free cash flow on non-profitable investments such as value-destroying takeovers. Jensen (1986b) also proposes that managers of bidding firms with unused borrowing power are more likely to carry out transactions that harm shareholder wealth. Amihud and Lev (1981) analyse the motives of conglomerate mergers and report that managers engage in such deals to diversify their personal portfolio to reduce the risk of losing their job and increase professional reputation. Grinstein and Hribar (2004) contend that CEOs with more power are likely to initiate high value deals relative to their firm size, and the market reacts less favourably to their takeover announcements. Dutta et al. (2011) indicate that more powerful CEOs have the tendency to take part in more takeovers to enlarge the firm size in a country with a stronger legal system. The authors demonstrate that CEO power is significantly higher for bidding firms compared to the CEOs of non-bidding firms.

Secondly, Finkelstein and Hambrick (1996) propose that takeovers, as a strategic choice of the firms, can be affected by the cognitive content, cognitive structure and style of the managers. More specifically, takeovers depend on a manager's knowledge, assumptions and beliefs; on how managers locate themselves and their organisation relative to other parties; and on how logical and reasoning their mind works. Shleifer and Vishny (2003) propose that rational managers have the ability to effectively time the market and aim to take advantage of the mispricing by undertaking takeovers. Roll (1986) evidences that managers tend to overestimate the result of mergers, and hubris or entrenchment is the explanation for takeovers to be conducted. This view is supported by Hayward and Hambrick (1997) who write that CEO hubris or exaggerated self-confidence can account for higher premiums and severe losses in shareholder wealth post-acquisition. The larger the CEO hubris and takeover premium, the larger the shareholder losses. Similarly, Malmendier and Tate (2008) suggest that managerial overconfidence accounts for corporate investment distortions. Overconfident managers overestimate the returns to their investment projects. Therefore, they offer higher premiums to target companies and conduct value-decreasing transactions. Conversely, Aktas et al. (2016) assess how narcissism influences the takeover process. The authors find that narcissistic acquiring CEOs are

more likely to initiate the offers and they negotiate faster. Moreover, acquiring CEO narcissism is negatively related to the costs of negotiation and does not harm shareholder wealth.

Thirdly, takeovers can relate to managers' personality traits, leadership characteristics, managerial group specifics and other observable variables such as age, functional track, career experiences, education and financial position (Gupta and Govindarajan, 1984; Hambrick and Mason, 1984; Bass, 1985; Miller and Dröge, 1986; Finkelstein and Hambrick, 1996). For example, Walters et al. (2007) state that there is a positive correlation between CEO tenure and bidder performance at low to moderate levels of tenure. A negative association is found at the substantial levels of tenure. However, with a good corporate governance practice, CEO tenure positively related to shareholder wealth at all levels. Yim (2013) documents that the possibility of firms making a takeover bid is negatively related to the CEO age. Moreover, Yim (2013) finds that M&As conducted by young CEOs associates with agency problems and are value-destroying. Desai et al. (2003), Masulis et al. (2007) and Teti et al. (2017) maintain that CEOs who are also the chairman of the board, are more likely to engage in value-decreasing takeovers. According to Jensen and Meckling (1976) and Lewellen et al. (1985), CEO ownership is positively related to firm value because of the closer alignment of interest between the principals and the agent. However, it should be noted that this positive relation is not observed in the studies of Denis et al. (1997) and Shekhar and Torbey (2005).

In general, CEOs are the key players in the corporate operation. The significance and complexity of takeovers require the involvement of CEOs at every stage of the process. How CEOs make takeover decisions and the consequences of takeovers depend on CEO values, cognitive base, personal traits and power. For this reason, these factors need to be considered when analysing the influence of the CEO on M&A transactions.

2.2.2 CEO Pay Disparity and Corporate Takeovers

2.2.2.1 CEO Pay Disparity

CEO pay disparity has been used as a proxy for CEO values, characteristics and cognitive behaviours (Hayward and Hambrick, 1997; Lee et al., 2008; Bebchuk et al., 2011; Vo and Canil, 2016; Zagonov and Salganik-Shoshan, 2017; Sahib et al., 2018). CEO pay disparity is the comparison of CEO compensation with the compensation of other members of the management team. CEO pay disparity can be the ratio of CEO compensation to the total or the average compensation of the board of directors, to the compensation of executive directors or to the compensation the second highest paid executive (Hayward and Hambrick, 1997; Lee et al., 2008; Bebchuk et al., 2011; Vo and Canil, 2016; Zagonov and Salganik-Shoshan, 2017). It has been documented that CEO pay disparity provides revealing evidence of the abilities, judgement and behaviour that CEOs bring into M&A transactions. This argument can be justified by several alternative explanations.

Firstly, the explanatory power of CEO pay disparity stems from the rich set of information about CEO characteristics that CEO compensation carries. Theoretical studies hypothesise that CEO compensation can be an indicator of human capital, such as managerial tenure and experience (Hogan and McPheters, 1980; Agarwal, 1981; Finkelstein and Hambrick, 1989); can be the reflection of the CEO skills, efforts and motivations, measured by firm size, firm growth and performance (Jensen and Meckling, 1976; Holmström, 1979; Agarwal, 1981; Jensen and Murphy, 1990); and can present the CEO political power in the organisation, with possible proxies such as CEO duality and CEO ownership (Finkelstein, 1992; Hambrick and D'Aveni, 1992). Vast supporting evidence has been provided by subsequent empirical studies. Finkelstein and Hambrick (1989) and Graham et al. (2012) confirm that CEO remuneration associates with CEO characteristics and management styles. Rose and Shepard (1994) and Bebchuk et al. (2011) equal CEO tenure and experience with CEO entrenchment and find that CEO compensation is higher for more experienced CEOs.

Other studies reason that higher CEO pay associates with CEO skills and efforts required to manage a large size, high growth and high performance firms. Bugeja et

al. (2012), Chalmers et al. (2006), Fleming and Stellios (2002), Izan et al. (1998) and Merhebi et al. (2006) confirm a positive correlation between firm size and CEO pay package. Khorana and Zenner (1998) and Bugeja et al. (2012) confirm that sales growth leads to higher CEO pay. Sloan (1993), Chalmers et al. (2006) and Bugeja et al. (2012) observe a positive relation between return on assets and CEO compensation. Bugeja et al. (2012), Boschen et al. (2003), Coughlan and Schmidt (1985), Hall and Liebman (1998), Merhebi et al. (2006) and Murphy (1985) detect an increasing impact of firm share returns on CEO compensation.

Arguing that CEO compensation indicates CEO power, Adams et al. (2005), Core et al. (1999) and Wade et al. (2006) share the view that CEOs who are also the chairman of the board impose more power and have more chance to pursue their own interest in a firm with weak governance practices. As a result, the authors posit that CEO duality positively relates to CEO compensation. Alternatively, Stevenson and Radin (2009) maintain that CEO duality requires multiple skills of managers, hence they should be better paid off. Core et al. (1999) and J. Core et al. (2003); J. E. Core et al. (2003) contend that CEO ownership reflects a larger incentive to the CEO to enhance shareholder wealth. Therefore, CEO compensation should be negatively related to CEOs share ownership. Chalmers et al. (2006) prove that larger CEO ownership reduces CEO compensation because of better alignment between the CEO and shareholders. Conversely, Bebchuk et al. (2011) propose that CEO ownership indicates a certain level of CEO power and rent-extracting possibility, which may result in higher compensation. In short, given the substantial information attached to CEO compensation, CEO pay disparity should carry at least equal information about CEOs.

Secondly, CEO compensation in relation to compensation of other directors may unveil even more substantial information on CEO perception and behaviour than does the CEO pay itself. According to Festinger (1954) and Goodman (1974), individuals have the tendency to evaluate and compare their capacities and personal traits with other comparative individuals. Goodman (1974) and Folger and Cropanzano (1998) share the view that compensation is not simply an income. Compensation is also a vital indicator of achievement, recognition and potential enhancement of self-esteem, which

are often highly valued but unsatisfied in most work environments. An individual values compensation by comparing the input, which is personal attributes such as age, education, effort and skill, to the outcome, which is the compensation paid (Adams, 1963). Interestingly, Goodman (1974) and Folger and Cropanzano (1998) find that inequity (overpayment or underpayment) between a person's input-output pay ratio and the referent's input-output pay ratio results in one's dissatisfaction. There are three main classes of referents in the evaluation of pay. The most popular class of referent is other individuals in a similar job in the same organisation. The second group is the pay system set up by the previous contract. The third class of referent is the self, which compares each individual in a different situation such as the past job. Brown et al. (2003), Greenberg (1990), Pfeffer and Langton (1993) and Wade et al. (2006) support this line of literature by confirming that workers are likely to perceive compensation as the reflection of their values and personalities. As such, being overpaid or underpaid influence ones' perception and the corresponding actions (Janssen, 2001; Bloom and Michel, 2002; Fredrickson et al., 2010). In other words, CEO values and characteristics have an impact on CEO pay disparity and vice versa, CEO pay disparity affects managers' attitude and behaviours.

Thirdly, CEO pay disparity not only reflects CEO characteristics as previously reviewed but also represents the comparison with other managers' skill and expertise. It may be that if CEOs believe in their superior abilities, they would demand greater pay disparity (Hayward and Hambrick, 1997). Bebchuk and Fried (2006) and Finkelstein et al. (2009) follow that because compensation is an important indicator of others' perceptions of CEO personal traits, CEOs have the tendency to compare how much they earn with their peers. This comparison is made possible because even the labour market for managers are not efficient regarding supply and demand, information on CEO compensation in this market is considered to be publicly sufficient and efficient (Crystal, 1992; Ezzamel and Watson, 1998; Khurana, 2004; Fong et al., 2010). Particularly, an executive can gather and circulate ample amounts of information about compensation of top management (Khurana, 2004; Finkelstein et al., 2009). Management networks are not only in charge for selecting, assessing and designing the CEO pay package but also for fostering information transparency on compensation (Haunschild, 1993; Davis and Greve, 1997). Additionally, other parties

such as compensation consultants, business media departments, regulations on annual reports and company announcements add to the extensive availability of compensation statistics. These parties remove compensation secrecy and promote comparison. Consequently, CEOs have enough information to respond to their tendency to compare and make the comparisons vastly observable to other parties of interest such as other CEOs, shareholders and the market (Khurana, 2004; Finkelstein et al., 2009).

Fourthly, CEO pay in relation to his peers may reveal the alignment of interest between the CEO and the shareholders. There are a number of studies that put forward that traditionally both the supply and demand sides of the labour market drive CEO compensation, thus setting CEO compensation at the optimal level (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). They contend that CEO compensation is designed to reduce the agency cost. Consequently, a larger CEO pay disparity minimises monitoring costs for shareholders and the board. Thus, a departure of CEO remuneration from that of his peers creates a mechanism that better aligns principal–agent interests and motivates the CEO towards value-enhancing decisions (Lee et al., 2008; Kale et al., 2009).

In contrast, Bebchuk and Fried (2003) and Hayward and Hambrick (1997) hold that CEO pay disparity indicates manager incentive and power, that is, CEOs have the ability to capture the pay process. If the variance of CEO pay and that of his peers is greater, the CEO's sense of domination is revealed. Such a large disparity exposes CEOs to the belief that directors differ broadly in their abilities and contributions, and that they are tremendously valued (Hambrick and Cannella, 1993). When there is the presence of a CEO self-interest, the agency cost occurs in the form of the CEO's rent-extracting behaviour using management power; and when managers have more power, they are able to do so to a greater extent (Bebchuk et al., 2002). In particular, the amount of rents extracted by managers is the excess pay over what they should obtain under a pay arrangement that favours the wealth of the shareholders. More importantly, because of the critical position that managers hold, the cost to the shareholders caused by rent-extracting behaviour might well be larger than the amount of the difference between extracted rent and the optimal pay. The link between CEO pay disparity, CEO

power and agency issue is further supported by Bebchuk et al. (2011), Chen et al. (2013) and Choe et al. (2014).

Finally, other studies argue that the escalated CEO compensation and the wider CEO pay gap reflects the change in the nature of the managers' job. Frydman (2006) and Murphy and Zábojník (2004) maintain that competition among top managers and CEO general managerial skills determines CEO pay disparity. They differentiate between "general managerial ability", which is critical in managing modern organisation but not specific to a firm, with "firm-specific managerial capital", which is the values required to lead a specific organisation. They uncover the increasing importance of general managerial skills in the modern economy that will trade-off with substantial CEO pay. Garicano and Rossi-Hansberg (2006) and Kaplan and Rauh (2009) assert that innovative communication technologies alters managerial occupation and remuneration. Hermalin (2005) maintains that corporate governance is becoming tighter and the increasing CEO pay gap is to compensate CEOs for the possibility of being fired. These explanations put forward that CEO pay disparity reflects modern management.

Taken together, these studies support the notion that CEO values, cognitive structure and personal characteristics determine their decisions. Nonetheless, these factors are not easily observed or measured. CEO pay disparity not only carries similar information about CEOs, as does CEO compensation, but it also delivers substantial information about other managers, about the alignment of interest between agent and principal, and the change in management job. For this reason, CEO pay disparity can be the valid proxy for CEO human capital.

2.2.2.2 CEO Pay Disparity and Corporate Operations

Investigating CEO pay disparity to explain for the effect of CEO ability and power on corporate operations is a continuing concern in the literature. However, previous findings have been inconsistent and contradictory. Lee et al. (2008) support the view that a higher pay difference attracts outstanding managers thus improving firm performance. The authors observe that firm Tobin's Q and firm share return

positively relate to the compensation disparity among top managers. Lee et al. (2008) suggest that firms with a large pay gap between the CEO and other directors produce higher operating return on assets than those with a smaller gap. Likewise, Kale et al. (2009) find that the pay difference between the CEO and other executives is positively related to the performance of the firm. They report a stronger correlation when a CEO retirement is planned and a less positive correlation when the new CEO arrives, a correlation which deteriorates further when the new CEO is not an existing executive. In the similar vein, Chang et al. (2010) analyse CEO pay disparity to support the positive contribution of CEOs to shareholder wealth. They reason that there is the relative difference between CEO capacity and that of other directors, which is reflected in the larger pay disparity. Chang et al. (2010) study the stock market's response to the announcement of CEO turnover, the career success of the CEO in the labour market after departing and the firm return after the CEO turnover. They do not find supporting evidence for the rent-extracting behaviour around the departure of CEO with high pay disparity. More specifically, the authors report that high CEO pay disparity is perceived as better quality of management and the stock market reacts negatively to the departure of such a CEO.

Nonetheless, several studies hold the opposite view. Bebchuk et al. (2011) write that CEO pay slice, which is the ratio of CEO compensation to the total compensation of other executives, has a negative association with firm performance. Furthermore, the authors claim that a high CEO pay slice results in a higher possibility of the CEO receiving lucky options grants at the favourable price, lower sensitivity of CEO replacement and lower stock returns during the period when higher CEO compensation is publicly announced. The authors conclude that a higher CEO pay slice represents agency issue and harms shareholder wealth. Chen et al. (2013) study 13,454 firm-year observations in the US from 1993 to 2007. They report that CEO pay disparity significantly and positively relates to the implied cost of equity capital or the internal rate of returns. They also find that this positive correlation is strengthened in the firm with agency problems of investing free cash flow and with high possibility of CEO turnover. The authors claim that their findings support the view of the link between large CEO pay disparity and CEO entrenchment.

2.2.2.3 CEO Pay Disparity and Corporate Takeovers

Although a sizeable research has been carried out on CEO pay disparity, little attention has been paid to its impact in the corporate takeover setting (Hayward and Hambrick, 1997; Bebchuk et al., 2011; Dutta et al., 2011). Hayward and Hambrick (1997) study 106 takeovers conducted in the US in the two years 1989 and 1992. They use the ratio of CEO compensation with the compensation of the highest paid executive as the measure of CEO self-importance, one of the indicators of CEO hubris. They report that CEO hubris is significantly and positively associated with takeover premium. The correlation between CEO hubris and takeover premium is stronger when the board has a high insider ratio and when the CEO is also chairman of the board. The authors find that CEO hubris associates with value-destroying takeovers. However, Hayward and Hambrick (1997) include only the year 1989 as a highly active year of acquisitions and economic growth, whereas 1992 is a trough. Although the authors also control for year effects in the model, it may be conjectured that the time frame may not be long enough to warrant the generalisation of the findings. Table 2.4 summarises prior studies.

Bebchuk et al. (2011) examine CEO pay slice between CEOs and top executives in a sample of 1,241 takeover events from 1990 to 2003. The authors compute the ratio between CEO compensation and the compensation of the top five executives of the firm. It is observed that CEO pay slice is negatively related to bidder announcement returns 11 days surrounding announcement. Bebchuk et al. (2011) also find that firms that pay their CEOs a high pay slice are more likely to be involved in takeovers with negative announcement returns.

Table 2.4 Summary of Empirical Studies on the Impact of CEO Pay and CEO Pay Disparity on Takeovers and Firm Performance

Author(s)	Period	Size	Measures	Main findings
Panel A: Empirical Studies on the Impact of CEO Pay on Takeover and Firm Performance in the Australian Market				
Bugeja, Matolcsy, Mehdi, et al. (2017)	2004–2011	272 Takeovers	Non-executive compensation divided by CEO compensation	Negatively relates to bid premium and positively related to bidder announcement returns
Schultz et al. (2013)	2000–2010	8,594 Firm-years		Cash bonus and long-term compensation positively relate to firm share return and return on assets
Bugeja et al. (2012)	2000–2007	177 Takeovers		CEO pay positively relates to firm performance
	1994–2003	312 Takeovers	CEO compensation divided by book value of assets	Positively relates to the probability of making acquisitions
Merhebi et al. (2006)	1990–1999	3,259 Firm-years		Positive CEO pay to performance relationship
Chalmers et al. (2006)	1999–2002	532 Firm-years		CEO compensation positively relates to return on assets
Evans and Evans (2002)	1995–1998	209 Firm-years		CEO incentive-based compensation positively relates to accounting returns
O'Neill and Iob (1999)	1997	900 Executives		No correlation between executive compensation and total shareholder return
Izan et al. (1998)	1987–1992	587 Firm-years		CEO compensation is not related to return on assets and share return
Evans and Stromback (1994)	1990–1991	586 Firm-years		A statistically insignificant correlation between executive remuneration and return on assets
Panel B: Empirical Studies on the Impact of CEO Pay Disparity on Takeovers and Firm Performance in the US and Other Markets				
Sahib et al. (2018)	2002–2006	384 Takeovers	Pay disparity: Difference between CEO compensation and the median compensation of other top management team members	The number and size of acquisitions are positively related to CEO pay disparity
Bugeja, Matolcsy and Spiropoulos (2017)	2001–2009	9,978 Firm-years	Bebchuk et al. (2011) CPS	No relation between the CPS and subsequent firm performance
Correa and Lel (2016)	2001–2012	89,175	Bebchuk et al. (2011) CPS and pay gap as the difference between total CEO pay and the median pay of the five highest-paid managers	CEO pay disparity partially reflects management entrenchment

Author(s)	Period	Size	Measures	Main findings
Masulis and Zhang (2013)	1993–2010	28,921 Firm-years	Pay gap: the ratio of CEO compensation to the median compensation of the executives competing for the CEO succession prize	Output-based productivity is more relevant than promotion-based tournament in explaining pay gap
Dutta et al. (2011)	2003–2005	154 Takeovers	Bebchuk et al. (2011) CPS	CPS positively relates to the probability of conducting takeovers and does not result in significant deterioration in bidder announcement returns
Bebchuk et al. (2011)	1990–2003	1,241 Takeovers	CPS: the ratio of the CEO total pay to the total pay of the five highest paid executives	CPS is negatively related to bidder announcement returns
Chang et al. (2010)	1992–2002	298 CEO	Relative pay (pay difference): the ratio of the CEO total pay to the total pay (average pay) of the four other highest paid executives	Stock market reacts negatively to the departure of CEO with high relative pay
Kale et al. (2009)	1993–2004	17,987 Firm-years	Pay gap: CEO pay minus median pay of the next level executives	CEO pay gap is positively related performance
Lee et al. (2008)	1992–2003	12,197 Firm-years	Pay dispersion: the standard deviation of compensation divided by the mean of total pay across the top managerial team	Tobin's Q and share return positively relate to the pay dispersion among top managers
Hayward and Hambrick (1997)	1989–1992	106 Takeovers	CEO relative pay: CEO pay divided by pay of the highest paid executive	CEO relative pay is positively related to takeover premium and negatively related to the bidder one-year returns

Dutta et al. (2011) investigate the relationship between CEO power, M&A activities and bidder announcement returns around in the Canadian takeover market from 1997 to 2005. The authors find that firms who paid their CEOs a higher CEO pay disparity conduct more M&A transactions. Such transactions enlarge the firm size and allow CEOs to demand higher compensation. Contrasting to the findings of Hayward and Hambrick (1997) and Bebchuk et al. (2011), Dutta et al. (2011) do not find evidence of the correlation between CEO pay disparity and bidder return surrounding announcement. The authors conclude that powerful CEOs who are paid a high pay disparity do not necessarily conduct takeover transactions that harm shareholder wealth. From the mixed evidence in the prior literature on the impact of CEO pay disparity on takeover premium and bidder performance, it is possible that the correlation may depend on country and time specifics.

In the Australian literature, the impact of CEO pay disparity on takeover premium and bidder performance remains relatively unknown. In this situation, a review of the relationship between CEO compensation and firm performance may provide some insights for this study. Several earlier studies do not find enough evidence for the correlation between CEO compensation and bidder performance. Using a hand-collected sample of 587 firm-year observations from 1987 to 1992 of 99 listed firms, Izan et al. (1998) state that CEO compensation is not related to either accounting return on equity or the annual share price return. O'Neill and Iob (1999) use the Hay Group's Executive Reward Service database providing compensation data for more than 900 of Australia's most senior executive positions drawn from major industrial, service, resources and financial sector companies. The main purpose of this database is for firms to assess the respective management positioning in the executive labour market. O'Neill and Iob (1999) claim a missing linkage between total shareholder return using the ASX Accumulation index and executive remuneration. Evans and Stromback (1994) use a sample of 586 observations for the 1990–1991 period. They find a statistically insignificant correlation between executive remuneration and accounting rates of return. A possible explanation is the lower deferred component of compensation in Australia compared to the US. Moreover, the unusual nature of the time period studied, which records bankruptcies and massive asset write-downs, may distort the results.

Alternatively, the positive effect of CEO pay has been documented. Examining a sample of 209 observations over the period from 1995 to 1998, Evans and Evans (2002) report a positive correlation between incentive-based compensation and accounting returns. The authors explain that executives with relatively high personal shareholdings may be less interested in scale effects and focus more on the factors that determine firm performance. In contrast, the relation between CEO cash compensation and firm performance is insignificant. Based on a sample of 532 firm-year observations from 1999 to 2002, Chalmers et al. (2006) find a positive pay-for-performance link between CEO compensation and accounting return on assets. The relation between CEO pay and the market share return is statistically insignificant. Schultz et al. (2013) study 8,594 firm-year observations from 2000 to 2010 provided by Connect 4 database. They report a positive relation of cash bonuses and long-term compensation with firm share return and accounting return on assets. Matolcsy and Wright (2011) construct a sample of 3,503 firm-years over the period from 1999 to 2005, using the UTS Who Governs Australia database. They find that firms whose CEO compensation is inconsistent with their firm characteristics underperform compared to those firms whose CEO compensation is determined by the firm characteristics. They use firm size, complexity, book-to-market ratios, prior stock performance, CEO share ownership and the presence of outside blockholders as determinants of CEO compensation. Merhebi et al. (2006) examine a sample of 3,259 firm-year observations for the 1990–1999 period, obtained from Connect 4 database. They report a positive CEO pay to performance relationship and weak evidence on the relationship between cash component and firm performance.

There are only a few Australian studies that place CEO compensation in the corporate takeover context. Brown and Sarma (2007) compare the ratio of CEO total compensation to the firm's total assets. They assert that a high ratio of CEO compensation to total assets reflects the company's expectation of a large contribution from the CEO. Furthermore, large CEO pay indicates considerable managerial power over the board. Brown and Sarma (2007) find that this ratio is significantly related to the decision to acquire another firm. Bugeja et al. (2012) compare CEO compensation pre- and post-takeover and find that CEOs are rewarded with higher compensation in the year of deal completion and one year after. The authors claim a positive association

between CEO pay and firm performance, measured by stock return and return on assets. CEO compensation is also reported to positively link with CEO skills and efforts, represented by larger deal size, acquiring target in different industry and revising the offer price. Bugeja, Matolcsy, Mehdi, et al. (2017) study the compensation of the non-executive directors to that of the CEO of the bidding firms. The authors find that this relative compensation is negatively associated with the bid premium. The authors report that non-executive director relative compensation is positively related to the returns to the acquiring firms over the three days surrounding the announcement. Although Bugeja, Matolcsy, Mehdi, et al. (2017) do not focus on CEO pay disparity, their findings can be equally interpreted to show that CEO pay disparity is positively related to takeover premium and negatively related to bidder announcement returns.

Collectively, previous research findings into the impact of CEO pay disparity on corporate operation in general, and on takeovers in particular, have been rather controversial. In the Australian context, the possible explanation is not only the difference in method and time spans of the reviewed studies, but also the uncompleted disclosure of CEO pay, the monitoring mechanism, the relatively small portion of deferred payment compared to the international practices or the “noisy” data. To date, this research is the first to use up-to-date data over the longest possible time span to compare CEO compensation to that of other directors and generates a fresh insight into the CEO pay practice and its consequences.

2.3 THE INTERACTION BETWEEN MARKET OPTIMISM AND CEO PAY DISPARITY

Section 2.1 and Section 2.2 discuss the impact of market optimism and CEO pay disparity on takeover premium and bidder performance. However, these two driving forces do not separately affect corporate takeovers. According to Hambrick and Mason (1984), the combination impact of the market condition and managers’ attributes are difficult to predict when taking only one of them into account. Hence, the situation and managers’ characteristics interact to determine the firm performance. A similar argument is postulated by Waldman et al. (2001). The authors claim that the association between CEO characteristics and firm performance relies on the

environmental uncertainty. More importantly, the levels of uncertainty are differently perceived by CEOs, which again depends on their personal attributes. The authors find that uncertainty significantly moderates the correlation between firm performance and CEO characteristics. The argument of Hambrick and Mason (1984) and Waldman et al. (2001) warrants the need to examine the interaction between market optimism and CEO pay disparity as a reflection of the CEO attributes that affect their takeover decisions. Although the influence of this interaction on takeover has not been investigated in the prior literature, closely related investigations can be found.

Shleifer and Vishny (2003) propose an irrational investor – rational manager framework in which managers are considered to have the ability to take advantage of mispricing on the stock market. In this environment, CEOs pay cash when their firm's stocks are relatively undervalued; and by issuing stock when their firm's stocks are relatively overvalued. In the short term, CEOs expect to benefit shareholders from the rising share price because of the market sentiment. In the long term, they predict their firm's value will be lower because of the market correction and expect that the deals will make the negative returns less severe. Supporting this argument, the empirical studies of Bouwman et al. (2009) and Gugler et al. (2012) demonstrate that takeover deals announced in high valuation markets perform better in the short term. In the long term, those deals experience a poorer result than those announced in low valuation markets.

Roll (1986) draws a rational investor – irrational manager framework. In this situation, investors are efficient in analysing the sufficient information on the market whereas CEOs are overly optimistic about their ability to generate positive outcomes from the transaction. In other words, managers believe that because of their exceptional traits, they can effectively select potential targets and generate gains. Consequently, they have the tendency to offer large premiums and bidders suffer negative returns in the long-run. Supporting this argument, Hayward and Hambrick (1997) associate pay disparity with CEO overconfidence, which is found to increase bid premium and worsen bidder performance. Likewise, Malmendier and Tate (2008) state that overconfident managers are more likely to initiate the deals and experience lower returns than their counterparts.

Rosen (2006) claims the coexistence of irrational investors and irrational managers in that both investors and managers are led by optimism. Managers may be overly optimistic about synergies and process more low quality takeover deals during bull markets. Because the bull trend will continue to raise bidders' stock price, managers may also find a hot market offering a good chance to pursue their objectives by making bad deals without harming their reputation. In the long term, when the market cools down, takeover deals that are not fundamentally of good quality will likely become value-destroying. Similarly, Croci et al. (2010) reveal that the interaction between optimism level and CEO behaviour is a factor of acquirer returns. They suggest that in a high optimism market, entrenched CEOs fail to outperform, both in the short term and the long term.

In conclusion, CEOs may be rational and highly capable of evaluating the transaction; or they may optimistically overestimate the value of their firms and the synergies and underestimate the associated risks. The views of CEOs depend on their values, cognitive structure and other personal traits. At the same time, investors on the market can be either rational or overly optimistic in evaluating and reacting to the transaction announcement. While there are several studies examining the effects of market optimism and CEO pay disparity as the reflection of CEO characteristics separately, their interaction remains an unanswered question that will be explored for the first time in the present research. Using CEO pay disparity as the reflection of CEO characteristics enables this research to compare and contrast how CEOs with high and low pay disparity take action in a different level of market optimism.

2.4 CHAPTER SUMMARY

This chapter shows that market optimism and CEO pay disparity are the two driving factors of takeovers. This chapter begins with the psychological background of optimism, its presence in the financial market and its correlation with takeover premium and bidder performance. How CEOs manifest themselves in the corporate operation and takeovers as the key players has been justified, followed by a justification for CEO pay disparity to present CEO characteristics and power. This chapter then documents the previous evidence on the impact of CEO pay disparity on

takeover decision. Lastly, this chapter provides evidence to suggest the possible interaction effects between market optimism and CEO pay disparity. This chapter raises several issues yet to be addressed. Firstly, there is a need to incorporate the optimism level of the stock market and the bond market. Secondly, the mixed and inconclusive evidence from the prior literature suggests a reconciliation of relevant theories to find the reason. Thirdly, the question of how CEOs who are paid different CEO pay disparity act in different market conditions. Finally, the specific features of the takeover market and corporate governance practice in Australia as presented in Chapter 1 may conjecture the findings from other markets. The next chapter provides the conceptual framework and develops the hypotheses for such study.

Chapter 3: Theoretical Framework and Hypotheses Development

3.0 CHAPTER OVERVIEW

Chapter 3 discusses the theoretical frameworks and hypotheses development for this study. This chapter presents four alternative theories explaining the impact of market optimism and CEO pay disparity on takeover premium and bidder performance: neoclassical theory, market misvaluation theory, managerial power theory and efficient contracting theory. The neoclassical theory and the market misvaluation theory emphasise the economic, market-wide and industry effects. The managerial power theory and the efficient contracting theory focus on the individual level effects.

This chapter is structured as follows. Section 3.1 reviews the four theories. Section 3.2.1 proposes the hypotheses on the association between market optimism and CEO pay disparity on takeover premium. Section 3.2.2 justifies the hypotheses on the impact of market optimism and CEO pay disparity on announcement returns and long-term returns of acquiring firms. Subsequently, Section 3.2.3 rationalises the hypotheses on the impact of CEO pay disparity on takeover premium and bidder performance in different market conditions. Section 3.2.4 visualises the conceptual schema. Finally, a summary of Chapter 3 is provided in Section 3.3.

3.1 THEORETICAL FRAMEWORK

The existing literature has established that both the aggregate market and managers' behaviour can be an important driving force of takeover premium and

bidder performance (Jensen and Meckling, 1976; Davidson, 1981; Roll, 1986; Scharfstein and Stein, 1990; Haspeslagh and Jemison, 1991; Haunschild, 1994; Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Sitkin and Pablo, 2004; Harford, 2005). It is widely observed that M&As do not occur evenly. Instead, periods of takeover intensity happen from time to time, suggesting some common factors shaping companies' decisions to merge (Mitchell and Mulherin, 1996; Gaughan, 2011). Takeover clustering has been recorded worldwide between 1897 and 1904, 1916 and 1929, 1965 and 1969, 1981 and 1989, 1992 and 1999, and 2003 and 2007 (Gaughan, 2011; DePamphilis, 2015). Recently, there is evidence in the literature to indicate that the current period of merger concentration starts from 2011 (Cordeiro, 2014; Dieudonne et al., 2014; Caiazza, 2018; Raitis et al., 2018). This evidence clearly suggests the market-wide explanatory power of mergers.

It is common knowledge that a takeover is a complicated process that requires significant effort from managers. There are different stages in the takeover process, starting from selecting a possible target, estimating a company's value, comparing that value with the market value and then estimating the prospective synergy's future gain. In addition, a number of other factors also need to be considered, such as the market trend, the presence of competing bidders, the target's resistance and the valuation error (Davidson, 1981; Haspeslagh and Jemison, 1991; Haunschild, 1994; Sitkin and Pablo, 2004). Obviously, each step is dependent on the manager's subjectivity and justification, which may lead to different outcomes for the takeovers, suggesting the prominent role of managers in the takeover process. Different alternative and much-debated theories exist in the literature regarding the impact of the wider market and CEO behaviour on takeover premium and bidder performance. Some of these theories are the neoclassical theory, market misvaluation theory, managerial power theory, and efficient contracting theory. The following sections discuss each theory.

3.1.1 Neoclassical Theory

The *neoclassical theory* proposes that mergers are triggered by industry shocks and the smooth asset reallocation mechanism (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001; Harford, 2005; Eisfeldt and Rampini, 2006). The proponents of

the neoclassical theory argue that takeovers cluster disproportionately in specific industries that experience the largest amount of shocks. Shock is defined as any factor, expected or unexpected, that shifts the industry structure (Mitchell and Mulherin, 1996). These shocks can be in the form of economic, regulatory or technological changes that require or enable the transformation in the industry and inter-industry structure. The industry structure, which refers to the number and size of the industry's constituents, is a function of a number of factors including government policy, supply and demand, finance, technology and foreign competition (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001; Harford, 2005; Eisfeldt and Rampini, 2006). For example, technologies lead to excess capacity and the need for industry concentration. Alternatively, deregulation brings new investment opportunities, removes entry and exit barriers, and directs the change in the industry structure.

When shocks occur, some firms cannot adapt to the changes easily, while others are able to respond to shocks internally through organic expansion or externally through M&As (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001; Harford, 2005). M&As reallocate assets among firms, from firms where resources are not used effectively to firms that can operate efficiently in the new environment (Jovanovic and Rousseau, 2001; Harford, 2005; Eisfeldt and Rampini, 2006). Mitchell and Mulherin (1996) believe that M&As are an efficient means of the asset reallocation process. M&As cluster in a time when managers simultaneously initiate the deals and compete for the most effective combinations of assets.

As evidence of the neoclassical theory, merger history records several merger waves as the result of industry shocks and assets reallocation (Jovanovic and Rousseau, 2008; Gaughan, 2011; DePamphilis, 2015). In the mid-1970s, a sizeable portion of M&As can be explained by technological and supply shocks. These shocks led to excess productive capacity in many industries and takeovers happened to remove the excess capacity (Jensen, 1993). In the 1980s of the Retrenchment Era, takeovers were prompted by the deregulation that happened in many industries when the regulators aimed at increasing the level of competition. Financial innovation and oil price shocks also contribute to the changes. As a result, the ineffective companies were acquired by their rivals (Mitchell and Mulherin, 1996; Gaughan, 2011; DePamphilis,

2015). Similarly, in the 1990s, the Age of the Strategic Mega merger, deregulation shock and technological changes precipitated a high concentration of takeovers (Gaughan, 2011; DePamphilis, 2015). Contemporarily, the current merger intensity of the Quantitative Easing Era has been indicated as triggered by the low cost of financing (Cordeiro, 2014; Dieudonne et al., 2014; Caiazza, 2018; Raitis et al., 2018).

The neoclassical theory relates to market optimism for three main reasons. Firstly, the neoclassical theory requires the economy to be financially developed. Specifically, Harford (2005) proposes the link between high stock market valuation and high capital liquidity during economic expansion. Jovanovic and Rousseau (2001) associate industry shocks with asset reallocation, suggesting the optimistic view by acquiring firms of the prospect of the potential synergies. Thus, this theory assumes the stock market to be highly liquid which “disciplines poor management and restructure failing companies” (Jovanovic and Rousseau, 2001, p. 28). Likewise, the ease of financing on the bond market is claimed to be the condition for the smooth asset reallocation process (Harford, 2005). These conditions imply that takeover activities correlate with the optimism during periods of high liquidity on the stock market and a loose credit condition.

Secondly, it has been previously reported that takeover intensity positively relates to stock prices and aligns with periods of high market P/E ratios (Nelson, 1959; Weston, 1961; Rau and Vermaelen, 1998; Jovanovic and Rousseau, 2001; Sudarsanam and Mahate, 2003; Harford, 2005). A strong positive correlation between takeover concentration and share prices has been demonstrated by Jovanovic and Rousseau (2001), Nelson (1959), Melicher et al. (1983) and Weston (1961), suggesting that merger intensity may have its origin within share price movement. According to Melicher et al. (1983), higher stock prices reflect expectation of favourable economic environment and less costly investment. Jovanovic and Rousseau (2001) support this view by explaining that the occurrence of new shocks is good news for market participants. For example, technology brings a new generation of high valued entrants who take up the values of the inefficient constituents. As a result, even the inefficient firms will experience a rise in share price. Hence, the optimistic view of economic condition raises the share price as well as takeover activities (Jovanovic and Rousseau,

2001). Moreover, Jovanovic and Rousseau (2001) show that higher market P/E ratios coincide with the technological changes and merger clustering. Similarly, Sudarsanam and Mahate (2003) argue that higher market P/E ratios do not only indicate favourable investment condition but also reflect higher investors' valuation and optimistic attitude towards the future prospect of the firms. The explanatory power of P/E ratios to market optimism and M&As is consistent with the common view in corporate finance that P/E ratio "is a measure of the esteem in which the company is held by investors" (Brealey and Myers, 1996, p. 449).

Thirdly, neoclassical theory suggests a relationship between industry shocks, M&As and the discrepancy in Tobin's Q of acquirers and targets (Gort, 1969; Jovanovic and Rousseau, 2001; Andrade and Stafford, 2004; Jovanovic and Rousseau, 2008). The Q ratio is the ratio of market value to the replacement cost of capital (Hayashi, 1982; Jovanovic and Rousseau, 2002). Influential research that dates back to Hayashi (1982) suggests that Q theory is the modified neoclassical theory. Gort (1969) argues that the wider variance of stock prices and invested capital may be the sign of technological change. Andrade and Stafford (2004) find that mergers cluster by industry shocks and positively relate to the Tobin's Q of the bidding firms. Jovanovic and Rousseau (2008) claim that new technology increases the variance in Tobin's Q of the existing firms and the new firms. It is postulated that high Tobin's Q firms facilitate assets reallocation and improve bad targets (Jovanovic and Rousseau, 2002, 2008). Firms with high Tobin's Q are referred to as high value firms that are well managed or have prosperous opportunities. Tobin's Q also reflects growth opportunities of the firms. Hence, periods of takeover concentration prompted by industry shocks can be the period of optimism for bidders with high Tobin's Q.

In short, the neoclassical theory claims that it is the industry-wide common factors that shape takeover activities. Being driven by fundamental factors, the firms' responses to various shocks lead to the industry's asset allocation and efficiency improvement. Proposing the correlation between the high liquid market and takeovers, this theory implies the impact of market optimism on takeovers and the need for analysing the impact of the liquidity of the whole market, which includes the stock market and the bond market. The neoclassical theory does not only place a greater

emphasis on the influence of industry changes, but it also points out the link between M&A activities and the high Tobin's Q firms, which are well managed or have high growth opportunities. This relationship suggests the need to study the importance of the roles of managers in corporate takeovers, which this thesis will cover. However, the neoclassical theory focuses on studying mergers clustering by industry, which may happen within one industry or several industries at the same time. It does not fully explain the aggregate market-wide M&As. Thus, the market misvaluation theory which provides an alternative explanation of takeover activities, will be discussed in the next section.

3.1.2 Market Misvaluation Theory

The *market misvaluation theory* asserts that overvaluation in the stock market prompts takeover activities. In a bull market, there are more bidders who buy undervalued targets for cash, or use their overvalued stocks to acquire firms that are less overvalued (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006). The two models of the market misvaluation theory are those proposed by Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004).

The Shleifer and Vishny (2003) model proves that M&As are the result of the market relative valuation of targets, bidders and synergies. The Shleifer and Vishny (2003) framework perceives the financial market to be inefficient, one in which information is not fully reflected, leading to the mispricing of a number of its constituents. At the same time, the framework assumes managers to be efficient who are well informed and can take advantage of the market through takeovers. Specifically, managers “know precisely with respect to both their own firms and the prospective merger partners how the short-run valuation deviates from efficiency, what the perception of synergies is, and what the long-run valuation will be” (Shleifer and Vishny, 2003, p. 298). Moreover, Shleifer and Vishny (2003) posit that targets' managers do not act for the interests of shareholders but for their personal gains. In stock acquisitions, targets' managers tend to have relatively short horizons or, alternatively, get incentives in several forms for agreeing to the deals. In the first case,

target managers see that once they realise a high announcement premium, they can sell their shares later and benefit from the takeovers. In the latter case, the incentives that target managers receive can be the economic benefit of stock options acceleration, or the political benefit of the possibility to be in the top management of the synergy. Both circumstances would allow managers of acquiring firms to process the takeovers.

The Rhodes-Kropf and Viswanathan (2004) model confirms Shleifer and Vishny (2003) model that misvaluation drives M&As. These two models share the same assumption that financial markets do not truly reflect the market values of bidders and targets. The Rhodes-Kropf and Viswanathan (2004) model is based on the so-called correlated misinformation, which contains the firm level component and the market level component. Rhodes-Kropf and Viswanathan (2004) specify that managers of both bidders and targets have private information about their firm's value, but bidders are more advantageous in evaluating the synergies. On the contrary, target managers are rational but have limited information to assess the value of combining the firms. Given that target managers know the value of their own firms, to accept the offers, their remaining task is to figure out the market component of the misvaluation. When this component is large in a high valuation market, the estimation error is high and targets are more likely to overestimate the prospective synergies. This is the reason why takeover offers often look better to target managers in a high valuation market. Accordingly, there may be a larger number of low quality deals to be accepted by target managers in this market condition.

Regarding the financing choice, Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) hold the same view that acquiring firms use stock as the "merger currency" if firms are overvalued. Conversely, cash is the preferred method of payment if bidder shares are undervalued. These alternatives allow managers to realise gains in the short term from market sentiment in stock-financed deals while being able to benefit from share price recovery in cash deals (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). In an inefficient market, misvaluation happens due to the existence of a group of investors who are optimistic about the prospect of particular shares. Investors have the tendency to be the optimists because they are highly affected by a number of psychological traits such as the illusion of

knowledge, confirmation bias, cognitive dissonance, representativeness bias, reference point and anchoring, dispositional effects and the social interaction (Festinger, 1957; Nickerson, 1998; Weber and Camerer, 1998; Baker and Nofsinger, 2002; Barber and Odean, 2002; Shefrin, 2002; Frazzini, 2006). As a result, investors are irrational in their estimates to pick up stocks and in their decision to hold or to sell stocks. In this way, investors' optimistic attitude enters the financial market, resulting in the misvaluation and the market optimism at the aggregate level. Moreover, the possibility of managers to raise capital by going to either the stock market or the bond market suggests the link between the two components of the financial market, implying that the optimism level in the stock market may have an impact on the bond market and vice versa.

In general, although the Shleifer and Vishny (2003) model and the Rhodes-Kropf and Viswanathan (2004) model provide alternative explanations, they come to the same conclusion that the market-wide misvaluation is the determinant of takeovers. Similar to the neoclassical theory, the market misvaluation theory suggests the inclusion of the optimism in the stock market and the bond market in analysing M&A transactions. Both of the theories observe the correlation between stock price and takeover activities. However, the neoclassical theory links the higher market price with financial liquidity while the market misvaluation theory relates higher market price to the behaviour of market participants. It is worth noticing that while the neoclassical theory limits its explanation to the changes at the industry level, the market misvaluation theory is advanced in taking into consideration both the impact of the aggregate market and the managers' behaviours. Nevertheless, the market misvaluation theory's assumption that CEOs are rational in making decisions is not always true. It may attract criticism and encourage further investigation in the situation that managers are irrational. Such a case is covered by the managerial power theory, which will be discussed in the next section.

3.1.3 Managerial Power Theory

According to the *managerial power theory*, empire building, entrenchment and herding behaviour by managers initiate merger activities (Jensen, 1986a; Roll, 1986;

Scharfstein and Stein, 1990). Empire building occurs as the result of the agency problem when shareholders (the principal) assign managers (the agent) to manage the firms on behalf of the principal (Jensen and Meckling, 1976; Fama and Jensen, 1983). Managers are expected to serve the sole objective of maximising the wealth of shareholders. However, the relationship of conflicting interests emerges when managers pursue their own objectives at the expense of the principals. The manager's power to fulfil their personal interests is facilitated by the resources under their control (Jensen and Meckling, 1976; Fama and Jensen, 1983). Thus, in order to increase their power and to achieve their own interests, managers are significantly motivated to enhance the sales growth, the efficiency and the probability of their firm's survival (Jensen, 1986a). From the manager's perspective, a takeover is an encouraging corporate decision that serves their goal of expanding the firm's resource that they manage. Consequently, empire building becomes the underlying reason for managers to conduct takeover deals, to strengthen their dominance and to fulfil their own interest (Jensen, 1986a).

Roll (1986) hubris model is based on the three assumptions. The first assumption is that the financial market is efficient with all information being fully reflected. The second assumption is that the product market does not allow for a gain at the same cost or a reduction of cost at the same output. The third assumption is that there is a mechanism in the labour market to ensure that managers are hired at the optimal contract. Roll (1986) maintains that because managers have only a few opportunities to make takeover decisions in their career, they have little chance to learn from past mistakes. Managers believe that their estimation of the value of the targets and the future of the synergies is right while the market fails to evaluate the transaction. Roll (1986) concludes that managers' hubris or entrenchment is the driver of takeover.

In a similar perspective of managers' irrationality, Scharfstein and Stein (1990) claim that a takeover is the result of herd behaviour. Scharfstein and Stein (1990) differentiate managers who efficiently assess informative signals to make decisions and the followers who act based on noisy signals. Scharfstein and Stein (1990) assume that the labour market can judge managers by identifying if managers made profitable investments and if their behaviour is similar to or different from that of other managers.

Because the outcome of the investments is highly unpredictable, information about managers' behaviour delivers an important signal to the investors. At the same time, the managers aim at maximising their expected wage while they have a particular concern that their ability is being judged. Consequently, to protect their reputation in the labour market, managers mimic other leaders in making corporate investment decisions including M&As, regardless of the privately available information they have (Scharfstein and Stein, 1990).

Apart from explaining the M&A activities, the *managerial power theory* also provides the underpinning reasons for managers' compensation. This theory holds that managers' incentive and power are determinant factors of CEO pay disparity. In other words, CEO pay disparity reflects CEO ability to influence the board and to capture the pay process (Hambrick and Cannella, 1993; Bebchuk et al., 2002). If the variance of CEO pay and that of his peer is greater, the CEO's sense of domination is revealed. Such a large disparity exposes CEOs to the belief that directors differ broadly in their abilities and contributions, and that CEOs are tremendously valued (Hambrick and Cannella, 1993). When there is the presence of CEO self-interest, the agency cost occurs in the form of CEO's rent-extracting behaviour using management power; and when managers have more power, they are able to do so to a greater extent (Bebchuk et al., 2002). In particular, the amount of rents extracted by managers is the excess pay over what they should obtain under a pay arrangement that favours the wealth of shareholders. More importantly, because of the critical position that managers hold, the cost to shareholders caused by rent-extracting behaviour might well be larger than the amount of the difference between extracted rents and the optimal pay when they make poor-quality corporate decisions (Bebchuk et al., 2002).

The managerial power theory points out that CEO power depends on a number of factors. The first possible path is through the ownership structure. The higher the CEO's share ownership, the greater their influence on the board and the deviation of their pay package from the optimal level (Bebchuk et al., 2002). Secondly, CEO power depends on the board structure, which is the proportion of inside directors and independent directors. However, the presence of independent directors on the board and on the different committees can only limit but not eliminate CEOs capturing the

pay package. This is because CEOs may have an informal influence on other directors in a number of ways. In particular, although director pay is normally designed by remuneration committees, favourable treatment of CEOs can lead to generous pay rises of other directors. Accordingly, CEOs can often exert their dominance over other board members as a trade-off for higher compensation (Bebchuk and Fried, 2003). In other cases, an independent director may become loyal to the CEO because he is grateful that the CEO has placed him on the board. Thirdly, CEO power may be facilitated by a larger board size. Core et al. (1999) argue that large boards often become less efficient, creating an environment for top managers to dominate the board and extract higher pay. Lastly, CEO duality is another source of severe agency problem that may increase the CEO power (Bebchuk and Fried, 2003). Thus, in such an environment, higher CEO pay disparity is the reflection of the managerial power and failure to implement value-enhancing financial decisions (Cremers and Palia, 2011).

In short, being distinctive from the neoclassical theory and the market misvaluation theory, the managerial power theory centres on irrational CEOs as an explanation for both M&A activities and CEO compensation. The managerial power theory recommends that powerful CEOs have more freedom not only in making corporate decisions but also in the intervening the pay process. Despite mentioning factors affecting CEO power, the managerial power theory does not fully acknowledge the situation in which there is less chance for CEOs to exercise their power. This environment can be created under certain regulations. Alternatively, there may be the case in which CEOs are paid an optimal remuneration package to act for the interest of shareholders, which is the claim of the efficient contracting theory.

3.1.4 Efficient Contracting Theory

The *efficient contracting theory* puts forward that traditionally both the supply and demand sides of the labour market drive CEO compensation, thus setting CEO compensation at the optimal level (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). Similar to the managerial power theory, the efficient contracting theory is based on the assumption that the interests of agents and principals are not

perfectly aligned. However, in contrast to the managerial power theory, which perceives CEO compensation as the indicator of the agency problem, the efficient contracting theory contends that CEO compensation is structured to minimise the agency cost (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979).

Under the efficient contracting theory, the optimum pay package is designed to meet three purposes. The first purpose is to attract talented directors. The second purpose is to motivate directors towards exerting their best efforts to maximise shareholder wealth. The third purpose is to reduce the overall costs. To satisfy those objectives, firstly, CEOs are required to own specific or superior capacities to successfully manage the organisations. CEOs tasks involve managing both human and material resources at the large scale, setting strategic plans and making corporate decisions (Himmelberg and Hubbard, 2000). In exchange, together with other career needs, managers would demand a pay package that meets or exceeds their earnings expectation (Murphy and Zábojník, 2004). Secondly, providing sufficient incentives to managers is a puzzle for firms, to the extent that it needs to motivate managers to execute their best capacities to generate wealth for the principals. However, there is a possibility that managers fail to meet one part of the requirement. They may either aim at increasing their relaxing time, or utilising their best skills but not to maximise shareholder benefits. To solve the issue, companies may choose to offer CEOs higher pay to provide a greater motives for them to act in the interests of shareholders (Murphy and Zábojník, 2004). Lastly, companies' offers to managers are bound by the overall cost. To be specific, companies will increase the pay package to no more than the level that the incremental compensation cost outweighs the incremental gains generated by managers (Mirrlees, 1976b). This mechanism should ensure that the optimal pay is cost-efficient to the firms.

Companies benefit from the optimal contract that mitigates the three components of the agency costs. Firstly, the monitoring cost is to limit deviant activities of managers. Secondly, the bonding cost is to ensure that managers will incur some costs if they harm shareholder interests. Thirdly, the cost of "residual loss" is the dollar value reduction in principals' wealth because of managers' action (Jensen and Meckling, 1976). In this optimal contract, there exists a mechanism that aligns the interests of the

principal with those of the agent, thereby enhancing the wealth of shareholders while appropriately rewarding the skills of the CEO. The optimal contract also ensures that managers are judged to perform efficiently (Harris and Raviv, 1979). This argument is in line with the rank-order payment scheme, which suggests that it is optimal to design the pay package as the prize for the winner of the labour market (Lazear and Rosen, 1981; Rosen, 1986a, 1986b; Kale et al., 2009). The outcome of such a contract is, therefore, “attract talented CEOs and incentivise them to exert effort, exploit growth opportunities, and reject wasteful projects, while minimising the cost of doing so” (Edmans and Gabaix, 2009, p. 486).

In general, despite being opposite to the managerial power theory, the efficient contracting theory shares the same perspective with the market misvaluation theory, in that managers are rational in making takeover decisions. However, the rational CEOs in the market misvaluation theory and in the efficient contracting theory are different in that in the former, CEOs pursue their own objectives whereas in the latter, they act for the interests of shareholders. The alignment of the principal and agent interest is made possible by the optimal contract in which CEOs are rewarded for their superior capacities. As such, the efficient contracting theory provides an alternative explanation for managers’ decisions. Likewise, managers in the efficient contracting theory and the neoclassical theory both aim at finding the opportunities and exploit them to enhance the shareholder value. However, the neoclassical theory place less emphasis on the role of managers whereas the efficient contracting theory considers managers to be the key players. These comparisons make it clear that the differences between the efficient contracting theory and the other three theories are fundamental. Moreover, such comparisons can help understand M&As much more clearly when critical contingency factors such as regulation and corporate governance practice are taken into consideration. This research acknowledges the possible vectors mentioned by the four theories, including the market-wide condition and effects, the role of managers and their behaviours, and the possible interaction among them. This understanding will be used to test the following hypotheses to explain takeover premium and bidder performance as the consequence of takeover decisions.

3.2 HYPOTHESES DEVELOPMENT

3.2.1 The Impact of Market Optimism and CEO Pay Disparity on Takeover Premium

The theories discussed in Section 3.1 provide diverse views on the impact of market optimism and CEO pay disparity on takeover premium. The takeover premium offered by the acquiring firm can be explained by the *neoclassical theory* that managers of bidding firms conduct a takeover deal only if it creates value for shareholders (Jovanovic and Rousseau, 2001; Harford, 2005). Managers depend on neither misvaluation nor self-interest in processing the transactions. Instead, the neoclassical theory established that industry shocks and sufficient liquidity are drivers of takeovers (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001; Harford, 2005; Eisfeldt and Rampini, 2006). Because the reasons to merge are fundamental, together with the alignment of interest between managers and shareholders, a takeover will ultimately result in the highest wealth creation. These arguments imply that even in a high optimism market in which managers believe in the potential prospect of the combining firms and the ease of asset reallocation, there is no incentive for managers to pay a higher offer price.

Under the *market misvaluation theory*, the market is an inefficient one in which information is neither publicly available nor being fully absorbed, and in which investors are likely to be overly optimistic. The reason behind this tendency is the likelihood of investors to be infected by a number of human cognitive biases ranging from the illusion of knowledge to cognitive dissonance, representativeness bias or dispositional effects, to name just a few (Festinger, 1957; Nickerson, 1998; Weber and Camerer, 1998; Baker and Nofsinger, 2002; Barber and Odean, 2002; Shefrin, 2002; Frazzini, 2006). Making investment decisions based on these irrationalities, investors impose their optimistic view into the aggregate market in the form of market misvaluation. In this circumstance, when the mispricing is identified, managers of acquiring firms are likely to pay higher bid premiums to lock in the deals and take advantage of the market misvaluation (Shleifer and Vishny, 2003). Alternatively, in the Rhodes-Kropf and Viswanathan (2004) misvaluation model, target managers use

all available information to evaluate the offer. They accept the offers that go above their expected price based on the private information that they are able to obtain. In a high valuation market when investors' optimism is prevalent, the market misvaluation component is large and the target managers are more likely to overvalue the combining firms. Consequently, they accept the bids offering high premiums. Taken together, both the Shleifer and Vishny (2003) model and the Rhodes-Kropf and Viswanathan (2004) model of the market misvaluation theory predict a positive relationship between market optimism and takeover premium.

According to the *managerial power theory*, managers make the decision to merge because they want to achieve their own objectives, or because they are affected by hubris or herd behaviour (Jensen, 1986a; Roll, 1986; Jensen, 1988; Scharfstein and Stein, 1990; Hayward and Hambrick, 1997). Managers' self-interests range from enhancing reputation and compensation to following the desired career path. These incentives induce managers to overbid in order to secure the deals (Jensen, 1986a, 1988). Overconfidence in their abilities can also lead CEOs to the assumption that they can generate extraordinary outlays from synergies. Consequently, managers have the tendency to inject their self-esteem into corporate decisions, including the large premium they offer (Roll, 1986; Hayward and Hambrick, 1997). Alternatively, CEOs may follow other managers to make takeover decisions without relying on fundamental analysis (Scharfstein and Stein, 1990). As such, the premium CEOs offer is less likely to be reasonable. The managerial power theory also establishes that CEO pay disparity is an indicator of agency issue, in which CEOs pursue their own interest and use their power to influence the pay package (Hayward and Hambrick, 1997; Bebchuk and Fried, 2003). Arguably, higher CEO pay disparity is associated with the higher possibility that the CEO will capture the board in deciding the offer price.

From the *efficient contracting theory* point of view, CEO pay disparity is linked to the CEO talent and contribution to the value of the firm (Lazear and Rosen, 1981; Murphy and Zábojník, 2004; Chang et al., 2010). As such, efficient contracting theory infers the appropriate takeover premium that CEOs pay, not the expensiveness of the deal. Because CEOs with high compensation disparity are assumed to utilise their

superior skills to act in the interest of shareholders, they may decide to pay a high or low bid premium depending on their analysis of the potential synergies.

Empirically, the above arguments of the four theories have been supported by prior studies. For example, supporting the market misvaluation theory, Varaiya (1987) reports a higher bid premium when the level of market mispricing is larger. The author concludes that underpricing is significantly and positively related to bid premiums. Hayward and Hambrick (1997) observe significantly higher premiums associated with higher CEO pay disparity, providing strong support for the managerial power theory. Kendig (1997) reports a positive correlation between takeover premium and financial market booms and the increasing business confidence. Dong et al. (2006) find that high valuation bidders offer higher bid premiums and explain that CEOs of the acquiring firms expect a greater room to improve a poorly managed target and therefore can afford to offer a higher premium. In contrast, Duong and Izan (2012) do not find evidence of higher pay during merger waves, which may suggest the implication of the neoclassical theory or the efficient contracting theory.

Based on the varied perception of different theories and the mixed results of the previous analysis, this research postulates the following non-directional hypotheses:

H_{1a}: There is an association between market optimism and takeover premium.

H_{1b}: There is an association between CEO pay disparity and takeover premium.

In the following empirical analysis, if there is not enough evidence to support the correlation between market optimism and takeover premium, it can be concluded that the neoclassical theory holds in the sample. However, higher takeover premium during the high optimism market would suggest the implication of either the market misvaluation theory or the managerial power theory. Similarly, an increasing effect of CEO pay disparity on takeover premium is expected for the confirmation of the managerial power theory. In contrast, the efficient contracting theory can be supported regardless of the sign of the correlation and requires further analysis of bidder performance before making the conclusion.

3.2.2 The Impact of Market Optimism and CEO Pay Disparity on Bidder Performance

According to the *neoclassical theory*, M&As initiated during high optimism markets are considered to be efficient (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001). Moreover, this theory proposed that managers act for the benefits of shareholders. In other words, managers process only those transactions that increase shareholder wealth. Thus mergers in high optimism markets should be equal or better than transactions conducted in other market conditions. Because the driving forces of M&As, the market-wide shocks and sufficient liquidity, are fundamental, the equal or better effect of market optimism on bidder performance should be held both during the period surrounding announcement and in the long term (Harford, 2005).

The *market misvaluation theory* argues that high market optimism has an upward impact on bidder announcement returns (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). Shleifer and Vishny (2003) propose that rational managers time the market efficiently and take action when valuation is high, benefiting from the current market overvaluation. This is because the prevalence of optimism in the market creates a positive correlation between announcement return and the upward movement of stock price. However, market correction will happen in the long term, which will destroy shareholder wealth of the acquiring firms. Furthermore, in a rising market featuring high valuation error because of investor sentiment, deals are likely to be seen as more profitable while low quality deals seem to be accepted more easily by targets (Rhodes-Kropf and Viswanathan, 2004). Conversely, in a depressed or bear market, there is a tendency that targets will consider carefully if the synergy prospect is good enough to compensate for falling prices. Thus, higher quality deals will dominate a bear market and takeovers announced in this period will produce higher long-term returns than takeovers occurring in high optimism markets (Rhodes-Kropf and Viswanathan, 2004).

On the impact on bidder post-takeover performance, the *managerial power theory* indicates that CEOs may be overconfident in predicting future returns; they may irrationally follow others' strategies, or pursue empire building. It is also possible that

CEOs may receive inadequate information or may not analyse information properly (Jensen, 1986a; Roll, 1986; Jensen, 1988; Scharfstein and Stein, 1990; Hayward and Hambrick, 1997). As a result, acquiring firms experience lower returns because the synergies they pay for at such a high price do not generate gains (Jensen, 1986a; Roll, 1986; Jensen, 1988; Scharfstein and Stein, 1990; Hayward and Hambrick, 1997). In short, the market misvaluation theory and the managerial power theory predict negative takeover outcomes in the long term for deals conducted in high optimism markets because under these two theories there is no underlying economic rationale and no real synergy motive.

With reference to the impact of CEO pay difference, the *managerial power theory* predicts a negative correlation to firm performance (Hayward and Hambrick, 1997; Core et al., 1999; Bebchuk et al., 2011). It should be noted that corporate decisions involve not only CEO but also other executives; and that the firm's dollars for managers' compensation are limited. Thus, one possible explanation is that if CEOs earn a high pay compared to other directors, then the other executives do not have a proper incentive to carry out their tasks. It is also possible that the firms are unable to attract talented executives, which results in inefficient decision making and subsequent underperformance (Bugeja, Matolcsy and Spiropoulos, 2017).

In contrast to the managerial power theory, the *efficient contracting theory* reasons that high CEO pay disparity minimises monitoring costs for stakeholders and the board of directors (Mirrlees, 1976b, 1976a). Thus, a departure of CEO remuneration from that of his peers creates a mechanism that better aligns principal-agent interests and motivates the CEO towards value-creating decisions. A wider variance of compensation among managers encourages competition in the managerial tournament, which translates into high firm performance (Lazear and Rosen, 1981). As a result, high CEO pay disparity positively relates to firm returns (Lee et al., 2008; Kale et al., 2009).

Supporting the neoclassical theory, Eckbo (1983) and Mitchell and Mulherin (1996) observe a positive and significant market reaction in the announcement month. In line with the market misvaluation theory, Rosen (2006) evidences that a market-

wide optimism period enhances stock price and generates favourable bidder returns surrounding announcement. Similarly, Dong et al. (2006) and Bouwman et al. (2009) confirm that if takeover deals are undertaken in a high optimism market, a better announcement return is anticipated in accordance with the market trend. In the long term, they record significantly lower returns for high valuation transactions, suggesting that the market misvaluation theory consistently dominates in their sample.

Although there are a number of studies that examine the correlation of CEO pay disparity and firm performance in the general sample, similar studies in the takeover setting are relatively limited. Kale et al. (2009) and Masulis and Zhang (2013) observe a positive correlation in samples of general firms. Hayward and Hambrick (1997) report a negative correlation between CEO pay disparity and bidder one-year post-takeover returns. Bebchuk et al. (2011) evidence a negative relation both in the general sample and the takeover sample; however, in the M&As context, only short-term returns are examined.

Based on the mixed theoretical views and the dispersion of empirical evidence, the following non-directional hypotheses are proposed on the impact of market optimism and CEO pay disparity on bidder performance, separately for announcement returns and long-term returns:

H_{2a}: Market optimism is related to announcement returns of bidders.

H_{2b}: CEO pay disparity is related to announcement returns of bidders.

H_{3a}: Market optimism is related to long-term post-takeover returns of bidders.

H_{3b}: CEO pay disparity is related to long-term post-takeover returns of bidders.

In the subsequent empirical analysis, if a positive correlation between market optimism and the immediate market response to takeover announcements is observed with no reverse in the long term, the neoclassical theory would hold. The managerial power theory may apply if favourable short-term performance is detected, but only if

there is a clear sign of market correction in the long term. Furthermore, to suggest the dominance of the managerial power theory, a negative relation between CEO pay disparity and bidder performance needs to be reported. Otherwise, an increasing effect of CEO pay disparity would confirm the implication of the efficient contracting theory.

3.2.3 The Interaction Between Market Optimism and CEO Pay Disparity

The impacts of the market and managers' behaviour on takeovers have been explained by four different theories (Jensen and Meckling, 1976; Roll, 1986; Scharfstein and Stein, 1990; Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Harford, 2005). Hambrick and Mason (1984) and Waldman et al. (2001) consider managers as the filter that determines the level of effect the outside environment has on the internal resources. In the context of M&As, it is reasonable to believe that these two driving forces do not only place their impact separately but can also coexist, thus simultaneously having impact on takeover premium and bidder performance (Baker et al., 2004). For the above reasons, a reconciliation of managers and investors will provide an insight into the different effects that both parties have in shaping takeovers. Thus, the present research investigates the interaction between market optimism and CEO pay disparity to analyse the consequences of CEO pay disparity on takeover premium and bidder performance in different market conditions.

However, it should be noted that market optimism and CEO pay disparity are perceived differently under different theories. According to the *neoclassical theory*, high market optimism is associated with an efficient and highly liquid financial market, which facilitates asset reallocation (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001; Harford, 2005; Eisfeldt and Rampini, 2006). In contrast, according to the *market misvaluation theory*, the optimistic attitude of irrational traders leads to market mispricing (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006). In a similar fashion, under the *managerial power theory*, CEO pay disparity is dependent on managers' incentive and power to pursue their own benefits, or their hubris and herd behaviour (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990); whereas under the *efficient contracting theory*, high CEO pay disparity represents the rational managers who

utilise their skills to generate wealth for shareholders (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004).

		Market Optimism	
CEO Pay Disparity	(A) High Market Optimism: High CEO Pay Disparity	(B) Low Market Optimism High CEO Pay Disparity	
	(C) High Market Optimism Low CEO Pay Disparity	(D) Low Market Optimism Low CEO Pay Disparity	

Figure 3.1 Possible interactions between market optimism and CEO pay disparity

Given the above differentiations, a matrix of the possible interactions between market optimism and CEO pay disparity is proposed. Firstly, market optimism is classified under the neoclassical theory and the market misvaluation theory. Secondly, CEOs with a high CEO pay disparity according to the managerial power theory and the efficient contracting theory are categorised into different market conditions. The matrix of possible interactions is presented in Figure 3.1. In this matrix, under different theories, there are different possibilities for the market-wide effect of the rational/irrational investors and the individual level effect of the rational/irrational managers to interact. The interaction effects are discussed below.

The Possible Interactions in High and Low Market Conditions Under the Neoclassical Theory

Under the *neoclassical theory*, market optimism is the efficient market driven by industry shocks and loose credit condition. Positive shocks have been found to coincide with a rise in stock prices and higher market P/E ratios, indicating periods of market optimism (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001; Harford, 2005; Eisfeldt and Rampini, 2006). Neoclassical theory assumes that bidders’

managers act for the wealth of shareholders. This assumption matches with the *efficient contracting theory* which holds that high CEO pay disparity is to reward CEOs for their skills and efforts, and to align the interest of agent and principal (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). With this combination, in the high optimism market of the (A) *Quadrant*, there is no incentive for talented CEOs to offer higher prices and takeovers are value-generating. Therefore, there is no correlation on the interaction and takeover premium whereas a positive relation to bidder performance, both surrounding announcement and in the long term, is expected. The (B) *Quadrant* features superior CEOs in a low optimism market. In this circumstance, the efficient contracting theory believes that star CEOs are able to analyse the environment and pick up suitable targets for the purpose of enhancing the value of the firms. In the (C) *Quadrant*, when low-performing CEOs take action in high market optimism, they may not be able to recognise the potential synergies, thus underperform their counterparts. In the (D) *Quadrant*, less capable CEOs would harm shareholder wealth when they are unable to assess the deals efficiently but still engage in M&As under a harsh economic climate.

Diverging from the efficient contracting theory, the *managerial power theory* considers CEO pay disparity as the reflection of CEO power to dominate the board and to capture the pay process. Being infected by entrenchment, herding behaviour and empire building incentive, managers tend to overestimate the synergies and pay higher premiums, and their decisions eventually hamper the value of the firms (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990). In the (A) *Quadrant* in Figure 3.1, judgement bias and powerful CEOs may find it is encouraging to undertake M&A transactions in a buoyant economy to pursue their interest. Under the neoclassical theory, market optimism facilitates asset reallocation and improves efficiency. Thus takeovers initiated in this environment would generally create value. At the same time, CEOs impose their personal mark on corporate decisions including processing expensive deals. Consequently, the higher the premiums CEOs paid may lower or cross out returns from the potential synergies. The situation seems to be worse in the (B) *Quadrant* when CEOs process takeover transactions in a low optimism market. Their cognitive bias such as overconfidence and herding could raise the offer price to

be higher than the intrinsic value. In a market featuring rare demand for asset reallocation and low liquidity, managers' decisions could lead into severe negative returns to shareholders. The (C) *Quadrant* depicts CEOs with less pay variance to other directors taking action in a high optimism market. This may be the best interaction in the matrix that shareholders expect when there are less agency issues within the corporation and more industry-wide opportunities. Compared to other quadrants, this quadrant should bring about lower offer prices and better returns both in the short term and the long term. In the (D) *Quadrant*, low pay disparity indicates better corporate governance and less entrenched CEOs. It is likely that CEOs are not willing to pay high premiums. However, such deals may not warrant a wealth increase for shareholders in an environment of less opportunity and tighter credit condition.

The Possible Interactions in High and Low Market Condition Under the Market Misvaluation Theory

Under the *market misvaluation theory*, the stock market is inefficient, companies are mispriced and managers are rational in the sense that they are able to time the market (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Dong et al., 2006). In this situation, firms with overvalued stocks become the acquirers while undervalued firms become the targets. However, the ability of managers to take advantage of the market misvaluation can be for the benefit of shareholders or can be for managers' self-interests. The former fits in the efficient contracting theory perspective whereas the latter coincides with the managerial power theory.

When CEO pay disparity enters the system as an indicator of the optimal pay package in the *efficient contracting theory*, in the (A) *Quadrant* in Figure 3.1, rational managers who are paid a high pay disparity use their superior skills and efforts to maximise the firm value. Therefore, CEOs offer a proper price for targets and the transactions result in favourable performance (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). In the (B) *Quadrant*, when efficient CEOs initiate M&A transactions in a low optimism market, bidders may not gain in the short term because of the falling price. However, in the long term, the synergies would generate value

thanks to superstar CEOs who have the ability to pick up a suitable target and identify hidden synergies. In the (C) *Quadrant*, when less skilful CEOs process M&A transactions in a favourable market condition, they may benefit in the short term due to market sentiment. Nonetheless, takeovers will be value-destroying in the long term because less skilful CEOs are less likely to identify good opportunities. In the (D) *Quadrant*, takeovers conducted by less capable CEOs in a tough market condition may generate positive returns surrounding announcement as the result of the market sentiment. However, the result of the transaction would be detrimental to shareholder wealth, both because of market reversal and because the synergies are not fundamentally created.

Conversely, the *managerial power theory* proposes that managers pursue their personal objectives at the cost of the principals. In this framework, CEOs exert their power to capture the pay package and influence the management system (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990). In the (A) *Quadrant*, entrenched managers take action in a high optimism market with unreasonably high stock prices. In this condition, CEOs are highly motivated to offer large premiums and use their power on the board to process the deals. In the short term, such a decision would bring favourable returns in line with the market trend. Nevertheless, because the decision to merge is based on managers' self-incentive instead of the potential synergies, it would be value-decreasing. In the (B) *Quadrant*, powerful CEOs conduct the deals in an unfavourable market. Because of their irrational motives to make takeover decisions, they are likely to overbid while their domination over the board allows them to do so. However, the value of the acquiring firms is dampened both in the short term and in the long term because neither market sentiment nor the value of the combining firm would take up the share price. In the (C) *Quadrant*, when less entrenched CEOs exploit the opportunities arising in a high optimism market, shareholders may see lower premiums paid, positive announcement returns and less severe loss in the long term. In the (D) *Quadrant*, takeovers processed by less powerful CEOs in an unfavourable market condition may feature low premiums and low returns surrounding announcement, where there is not enough information to predict bidder return in the long term.

Based on the above different possibilities of the matrix, a set of non-directional hypotheses on the impact of CEO pay disparity in different market conditions are proposed:

H_{4a}: CEO pay disparity is related differently to takeover premium in different market conditions.

H_{4b}: CEO pay disparity is related differently to announcement returns of bidders in different market conditions.

H_{4c}: CEO pay disparity is related differently to long-term post-takeover returns of bidders in different market conditions.

3.2.4 Conceptual Schema

Prior discussion in this section reviews the four theories that attempt to explain the driving factors of merger activities, takeover premium and bidder performance. These theories are the neoclassical theory, the market misvaluation theory, the managerial power theory and the efficient contracting theory. The factors proposed by the four theories can be clustered into two groups. The first group is the economic, market-wide and industry factors. The second group is the individual decision makers. The theories also suggest organisational environment such as internal resources and corporate governance play an important role. While there has been substantial evidence in the extant literature supporting each of the above vectors, prior works simultaneously investigating two groups of explanations are relatively limited, especially in the Australian takeover market. This thesis attempts to fill in the gap by testing the impact of the two groups of factors and the interaction between them. The hypotheses in this thesis are visualised in the following conceptual schemas (Figures 3.2, 3.3 and 3.4).

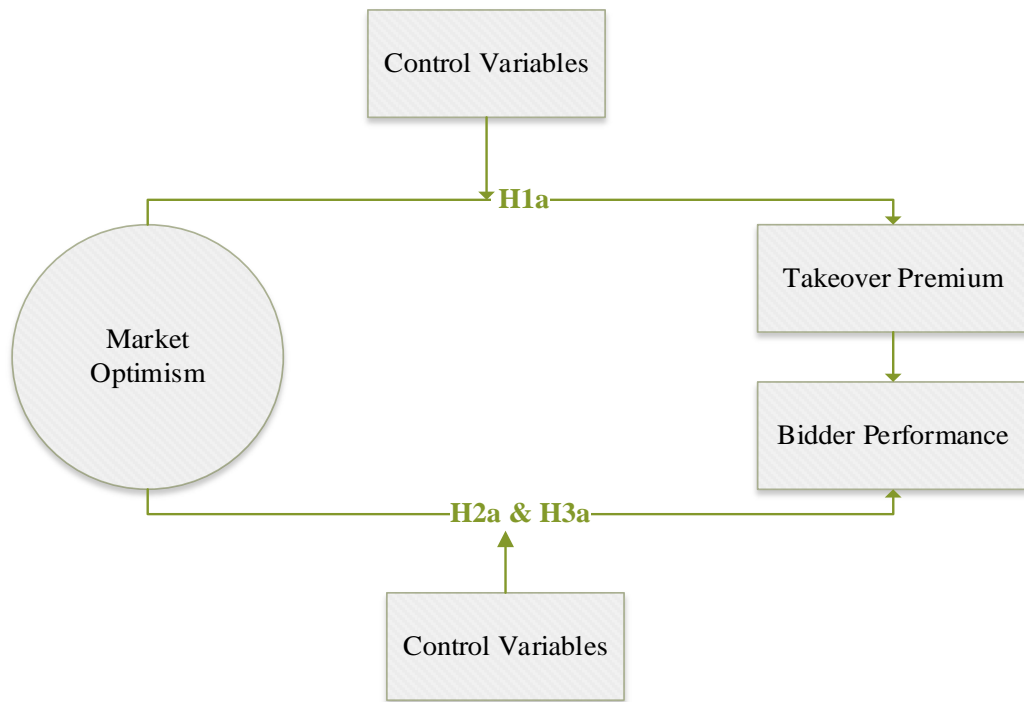


Figure 3.2 The impact of market optimism schema

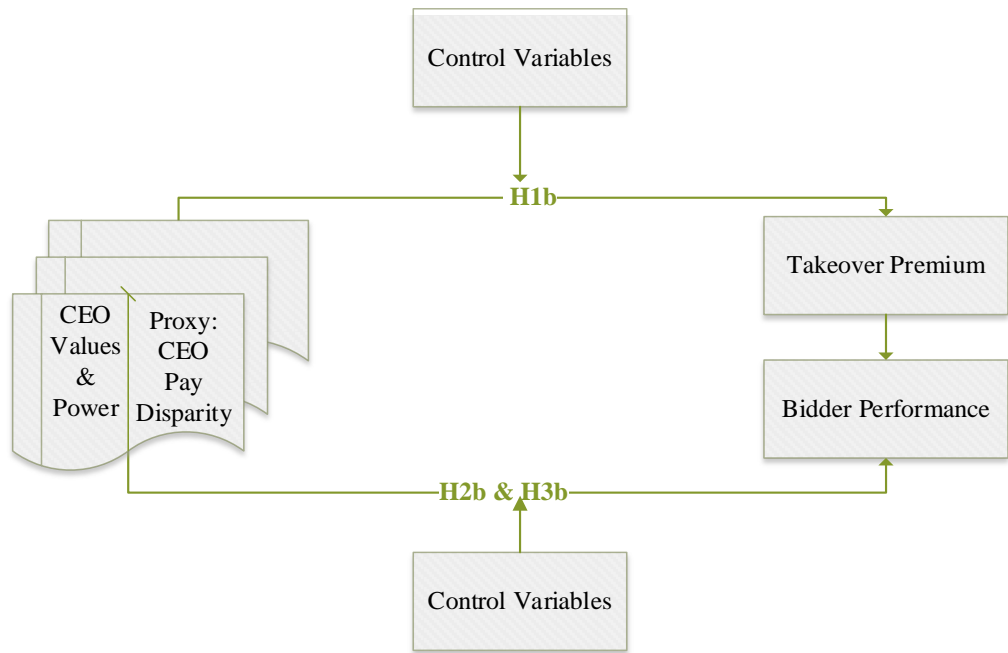


Figure 3.3 The impact of CEO pay disparity schema

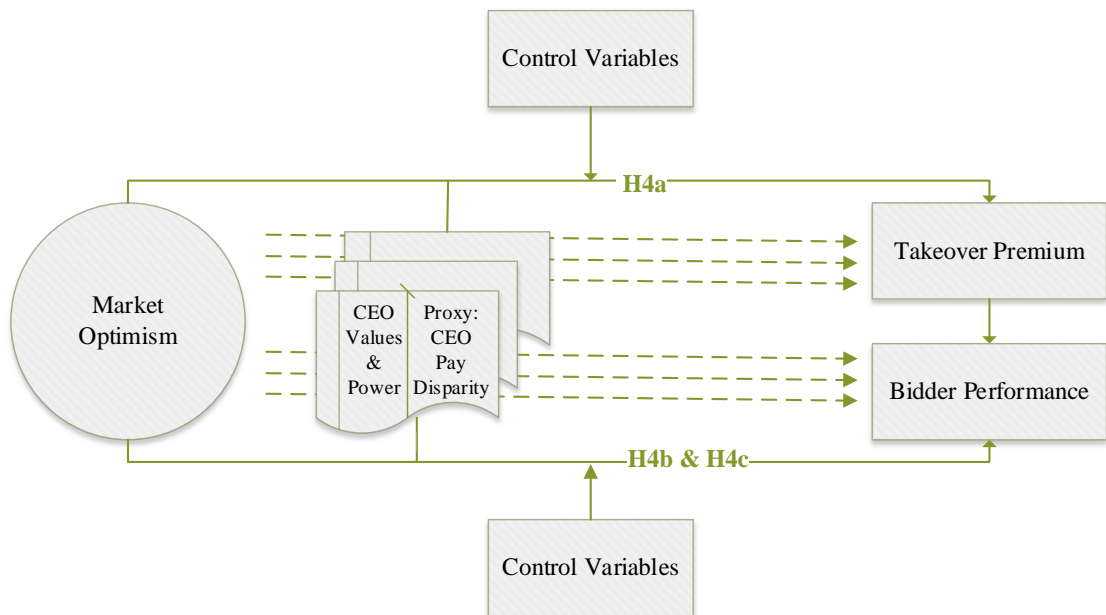


Figure 3.4 The impact of the interaction between market optimism and CEO pay disparity schema

3.2.5 The Proposed Examination on the Relevance of Theories

Base on the matrix of the possible interactions between market optimism and CEO pay disparity presented in Figure 3.1 and the postulated hypotheses as visualised in the above conceptual schemas (Figures 3.2, 3.3 and 3.4), this thesis summarises the proposed examination on the relevance of the four theories as follow.

The Relevance of Theories		
Correlation of Market Optimism	<p>(1) Neoclassical Theory</p> <p>Takeover Premium: +</p> <p>Announcement Returns: +</p> <p>Long-term Returns: +</p>	<p>(2) Market Misvaluation Theory</p> <p>Takeover Premium: +</p> <p>Announcement Returns: +</p> <p>Long-term Returns: +</p>
Correlation of CEO Pay Disparity	<p>(3) Managerial Power Theory</p> <p>Takeover Premium: +</p> <p>Announcement Returns: -</p> <p>Long-term Returns: -</p>	<p>(4) Efficient Contracting Theory</p> <p>Takeover Premium: <i>No prediction</i></p> <p>Announcement Returns: +</p> <p>Long-term Returns: +</p>

Figure 3.5 Proposed examination on the relevance of theories

3.3 CHAPTER SUMMARY

Chapter 3 documents the four theories grounding the impact of market optimism and CEO pay disparity on takeover premium and bidder performance. Firstly, this chapter reviews the driving factors of mergers pointed to by each theory and their impact on takeover premium and bidder performance. The *neoclassical theory* posits that mergers are triggered by industry shocks and sufficient capital liquidity. It predicts no effect of market optimism on takeover premium and bidder performance. The *market misvaluation theory* proposes that overvaluation in the stock market drives

takeover activities. It suggests market optimism is positively related to announcement returns and negatively related to long-term returns. According to the *managerial power theory*, empire building, entrenchment and herding behaviour by managers shape merger activities. This theory holds that manager incentive and power are determinant factors of CEO pay disparity, that is, CEOs have the ability to capture the pay process. It anticipates a decreasing impact of market optimism and CEO pay disparity on bidder performance. The *efficient contracting theory* puts forward that traditionally both the supply and demand sides of the labour market drive CEO compensation, thus setting CEO compensation at the optimal level. It claims that higher CEO pay disparity is associated with value-enhancing decisions.

Secondly, based on the diverse views of the four theories, different hypotheses are populated to examine: (i) the impact of market optimism on takeover premium and bidder performance; (ii) the impact of CEO pay disparity on takeover premium and bidder performance; (iii) the impact of the interaction between market optimism and CEO pay disparity on takeover premium and bidder performance. The methodology to test these hypotheses will be presented in the next chapter.

Chapter 4: **Research Design**

4.0 CHAPTER OVERVIEW

Chapter 4 describes the design adopted by this research to achieve the aims and objectives set out in Section 1.3 of Chapter 1 and to test the hypotheses specified in Section 3.2 of Chapter 3. This chapter starts with a specification of the methodology to identify high and low market optimism in Section 4.1. Section 4.2 presents the CEO pay disparity measurement and classification. The methodology to analyse takeover premium is presented in Section 4.3. The calculations and processes used to test the impact of market optimism and CEO pay disparity on announcement returns and long-term returns are in Section 4.3. Predictions on the interaction effects of market optimism and CEO pay disparity is shown in Section 4.5. Section 4.6 summarises the chapter.

4.1 HIGH AND LOW MARKET OPTIMISM IDENTIFICATION

In order to examine whether the consequences of making takeover decisions in high optimism markets are different from that of deals announced in low optimism environments, the first task is to categorise each announced month into a high or low optimism state. Bouwman et al. (2009), Goel and Thakor (2010) and Petmezas (2009) use detrended market P/E to classify high and low market valuation. Gugler et al. (2012) consider market P/E and the Spread between the Commercial and Industrial Loan Rate and the Federal Funds Rate to be the measurements of optimism in the stock market and the bond market respectively. The Spread between the Commercial and Industrial Loan Rate and the Federal Funds Rate has also been used by Harford (2005) to represent the borrowing cost and to link with the occurrence of merger waves. It

should be noted that stock-financed deals and cash-financed deals accounted for approximately equal portions of the total deals in our sample, which is consistent with Duong and Izan (2012) and Bugeja et al. (2016) findings that stock-financing is not a prevalent takeover payment method in Australia.⁵ Therefore, this research identifies market optimism by incorporating the optimism level on the bond market to the optimism level on the stock market. Both market P/E and the Spread between Bank Lending to Business Rate and the Overnight Cash Rate are examined. The process can be divided into two main parts. The first part is to identify high and low optimism on the stock market. The second part is to incorporate the optimism on the bond market to the optimism level on the stock market.

4.1.1 Market Optimism Using Detrended Market P/E – Bouwman et al. (2009) Approach

A sizeable stream of literature documents that takeover deals are related to stock market condition, both in the US market (Nelson, 1959; Weston, 1961; Melicher et al., 1983; Andrade et al., 2001; Rhodes-Kropf and Viswanathan, 2004; Bouwman et al., 2009) and in the Australian market (Bishop et al., 1987; Bureau of Industry Economics, 1990; Easton, 1994). In particular, takeovers conducted in a bull market are fundamentally different from that in a bear market (Nelson, 1959; Gort, 1969; Melicher et al., 1983; Jovanovic and Rousseau, 2001). A common technique to value the share price and assess the market condition is by using P/E ratio, which indicates the investors' esteem to companies (Brealey and Myers, 1996). To classify different market conditions, the aggregate market P/E ratio has been used to identify high and low market valuation (Bouwman et al., 2009), merger waves (Goel and Thakor, 2010) and market optimism (Crocì et al., 2010; Gugler et al., 2012). The P/E ratio is calculated by dividing share price by earnings per share. The P/E ratio is considered to be a crucial factor. It can be an earnings growth indicator, an equity's risk measure or an earnings capitalisation rate (Zarowin, 1990; Penman, 1996). For a market index, market P/E is the ratio of market value and total earnings, representing an earnings weighted average of P/E ratios of all constituents in the index. Ball (1978) claims that

⁵ Duong and Izan (2012) report 70% of deals are cash-financed for the period from 1980 to 2004. For a later period, Bugeja et al. (2016) find 61% of deals are cash-financed in the takeover sample from 2000 to 2011.

P/E ratio is the proxy for future returns. Therefore, this research follows Bouwman et al. (2009) and Goel and Thakor (2010) to use the market P/E ratio of the All Ordinaries Index to identify high and low optimism levels on the stock market. The P/E ratios for the All Ordinaries Index are obtained from the Datastream database. The market P/E ratio of the All Ordinaries Index is specified as follows:

$$P / E_t = \frac{\sum_{i=1}^n (P_{it} \times N_{it})}{\sum_{i=1}^n (E_{it} \times N_{it})}$$

(Equation 4.1)

Where:

P/E_t is market P/E in month t

P_{it} is share price of firm i in month t

N_{it} is number of shares on issue of firm i in month t

E_{it} is earnings share price of firm i in month t

n is number of constituents in the index

i is each constituent in the index

Figure 4.1 shows that the market P/E ratio experiences a downward trend for the period from 2000 to 2009 and an upward trend for the period after 2009. Thus, it is possible that identifying high and low market optimism based on the actual market P/E may lead to classifying a month to be in high or low market optimism simply because it belongs to a falling or rising period. For this reason, Bouwman et al. (2009) and Goel and Thakor (2010) use the detrended market P/E to classify each calendar month into high or low market optimism. The benefit of the detrended market P/E approach is to prevent categorising a month to be high or low optimism if that month's market P/E is not higher or lower than the average of a longer period (Bouwman et al., 2009; Goel and Thakor, 2010).

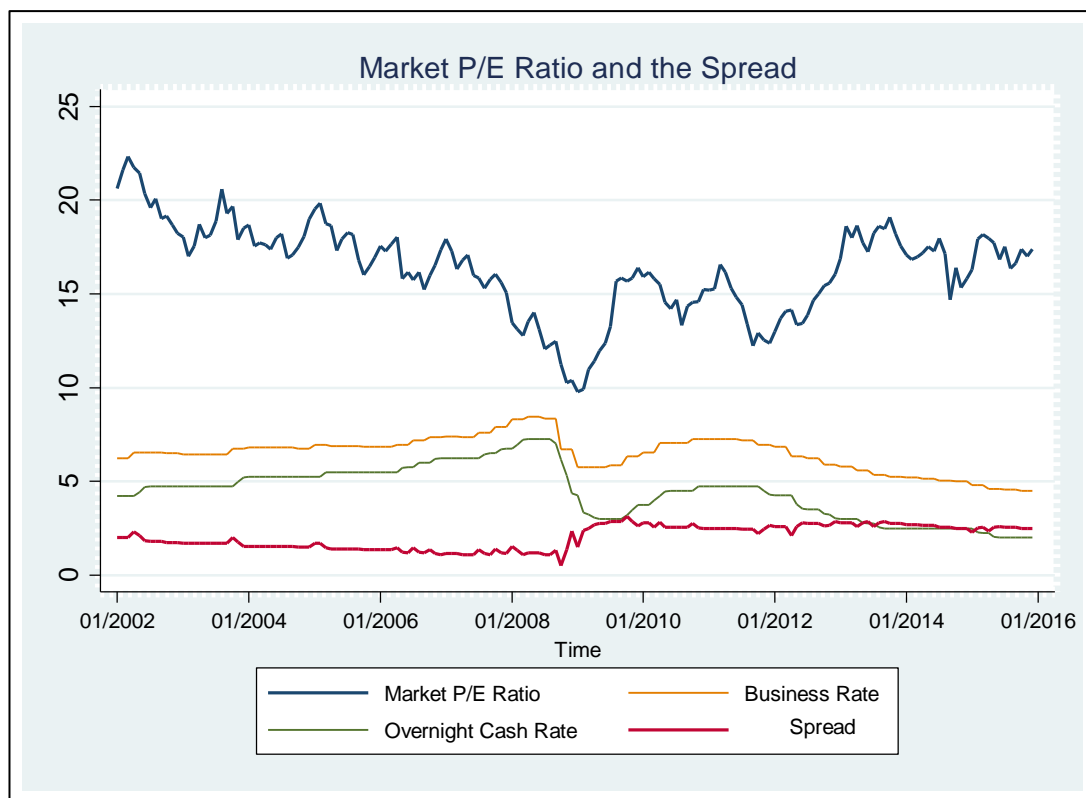


Figure 4.1 Time series relation between market P/E of the All Ordinaries Index and the Spread between the Overnight Cash Rate and Bank Lending to Business Rate

The first step in the Bouwman et al. (2009) approach is to calculate the five-year trend component in the market P/E of each month using the trailing moving average data filtering technique over the 60-month period.

$$MA.P/E_t = \frac{1}{60} \sum_{j=1}^{60} P/E_{(t-j)}$$

$j = 1, 2, \dots, 60$

(Equation 4.2)

Where:

$MA.P/E_t$ is the five-year moving average component of the market P/E of month t

P/E_t is the market P/E of month t

j is each month in the 60 months prior to month t

The second step is to calculate the detrended market P/E of each month by deducting the five-year trend component of each month from the market P/E of that month.

$$D.P/E_t = P/E_t - MA.P/E_t \quad (\text{Equation 4.3})$$

Where:

$D.P/E_t$ is the detrended market P/E of month t

P/E_t is the market P/E of month t

$MA.P/E_t$ is the five-year moving average component of the market P/E of month t

The third step is to compare the monthly detrended market P/E with the five-year average detrended market P/E.

$$\Delta D.P/E_t = D.P/E_t - \frac{1}{60} \sum_{j=1}^{60} D.P/E_{(t-j)}$$

$j = 1, 2, \dots, 60$

(Equation 4.4)

Where:

$\Delta D.P/E_t$ is the difference between the detrended market P/E of month t and the five-year average detrended market P/E

$D.P/E_t$ is the detrended market P/E of month t

j is each month in the 60 months prior to month t

Each month is classified as a high optimism period if its detrended market P/E is above the previous five-year average or a low optimism period if its detrended market P/E is below the previous five-year average (Bouwman et al., 2009; Goel and Thakor, 2010).

4.1.2 Modified Market Optimism to Incorporate Bond Market Optimism and Stock Market Optimism

Apart from providing evidence on the impact of the stock market condition on takeovers, prior literature highlights the effect of other economic fundamentals such as interest rate, bond spread, capital liquidity and production (Finn and Hodgson, 2005; Harford, 2005; Gugler et al., 2012; Duong, 2013). Since bidders can choose to finance their acquisitions either through the stock market or the bond market, and cash-financed deals account for a considerable proportion of the Australian M&As market (Duong and Izan, 2012; Bugeja et al., 2016), this research incorporates the optimism level of the bond market into the optimism level of the stock market.

Stockholders and bondholders are investors with different risk tolerance. Compared to stockholders, bondholders are more conservative and have the right to receive their payments before stockholders (Bernanke and Blinder, 1992). To get access to debt finance, acquiring firms have to pay a premium. The spread between a firm's borrowing rate and the cash rate, or the external finance premium, is one indicator of the level of risk tolerance of the bondholders (Bernanke and Gertler, 1999; Harford, 2005; Gugler et al., 2012). Hence, changes in bond spread may lead to changes in the market condition (Bernanke and Gertler, 1999; Harford, 2005; Gugler et al., 2012). For this reason, to analyse the financial market condition, this research controls for the Spread between Bank Lending to Business Rate and Interbank Overnight Cash Rates as equivalent to the Spread between Commercial and Industrial Loan Rate and the Federal Funds Rate in the US. Bank Lending to Business Rate and Interbank Overnight Cash Rate are obtained from the Reserve Bank of Australia (RBA).⁶ The optimism level of the whole market incorporating both the stock market optimism and the bond market optimism is estimated by using the following equation:

⁶ Table D8, Bank Lending to Business – Selected Statistics; and Table F1.1, Interest Rates and Yields – Money Market – Monthly. The quarterly Bank Lending to Business Rates are assigned to be the monthly rate of the three months of that quarter.

$$D.P/E_t = \beta_0 + \beta_{1j} \frac{1}{60} \sum_{j=1}^{60} D.P/E_{(t-j)} + \beta_2 Spr_t + \beta_3 Spr_{t-3} + \varepsilon_t$$

$j = 1, 2, \dots, 60$

(Equation 4.5)

Where:

$D.P/E_t$ is the detrended market P/E of month t as calculated in Equation 4.3

Spr_t is the Spread of month t

Spr_{t-3} is the Spread of the quarter prior to month t

j is each month in the 60 months prior to month t

There are two main components in Equation 4.5. The first component, the previous five-year average detrended market P/E ($\beta_{1j} \frac{1}{60} \sum_{j=1}^{60} D.P/E_{(t-j)}$), is to estimate the optimism level on the stock market. To derive this component, the first two steps in the Bouwman et al. (2009) approach are followed: (i) computing the five-year moving average component of the monthly market P/E (Equation 4.2); and (ii) detrending the monthly market P/E by deducting the five-year trend component from the market P/E of the month (Equation 4.3). In the third step, Bouwman et al. (2009) compare the monthly detrended market P/E with the five-year average detrended market P/E (Equation 4.4) and classify each month to be in a high or low optimism period if its detrended market P/E is above or below the previous five-year average. The modified detrended market P/E approach in this study is different to the Bouwman et al. (2009) detrended market P/E approach. To classify market optimism, Bouwman et al. (2009) use the five-year average detrended market P/E as the only benchmark to compare with the detrended market P/E of the month. In this study, the five-year average detrended market P/E is included in a linear regression model, which also controls for the Spread and its lag term.⁷

The second component, the Spread and its lag term of the previous quarter ($\beta_2 Spr_t + \beta_3 Spr_{t-3}$) is to account for the optimism level of the bond market. The Spread have been argued to be relevant to analyse the financial market condition that affects

⁷ See Appendix C for variable definitions and source of information.

takeover activities (Harford, 2005; Gugler et al., 2012). Gugler et al. (2012) use the Spread between the Commercial and Industrial Loan Rate and the Federal Funds Rate as an indicator of the optimism level, or the risk tolerance in the bond market. Gugler et al. (2012) consider the bond spread as a factor to analyse the amount of assets acquired. The bond spread has also been used by Harford (2005) to represent the overall liquidity or the ease of financing that drives merger waves. High liquidity in a boom market lowers transaction costs, relaxes financial constraints, increases cash flows, attracts borrowers to the bond market and promotes takeover transactions (Shleifer and Vishny, 1992). It is worth noticing that Gugler et al. (2012) and Harford (2005) include the Spread as an independent variable to explain M&As, in this study the Spread is added as an explanatory variable of the market optimism.

It can be seen from Figure 4.1 that the trend component of the Spread between Bank Lending to Business Rate and Interbank Overnight Cash Rate is relatively minor. This observation is known as interest rate smoothing and has been observed in many countries (Lowe and Ellis, 1997; Sack and Wieland, 2000). Interest rate smoothing refers to the central banks' tendency to move the official interest rates in a sequence of relatively small steps in the same direction. In addition, reversing direction is relatively infrequent (Lowe and Ellis, 1997; Sack and Wieland, 2000). For this reason, the detrending technique is not applied on the Spread in Equation 4.5. In the robustness test, controlling for the five-year moving average of the Spread shows similar results.

The next step is to rank each month based on the residual from Equation 4.5. The month is classified as high optimism if its residual is positive, and as low optimism if its residual is negative. In summary, the procedure to obtain market optimism is described as follow:

- Obtain monthly market P/E figures for the period January 1997 to December 2015, which includes the five years prior to the sample period (January 2002 to December 2015).
- Determine the detrended market P/E by calculating the five-year moving average (Equation 4.2), and subtracting it from the original market P/E of the month (Equation 4.3).

- Obtain the Spread between Bank Lending to Business Rate and the Interbank Overnight Cash Rate.
- Run regression (Equation 4.5) with the dependent variables are the previous five-year average detrended market P/E, the bond spread and lag spread of the previous quarter.
- Rank each month from January 2002 to December 2015 based on the residual of Equation 4.5. The month is identified to be high optimism if its residual is positive, and as low optimism if its residual is negative.

4.2 HIGH AND LOW CEO PAY DISPARITY CLASSIFICATION

4.2.1 Measures of CEO Pay Disparity

Takeovers are significant corporate events that are not only influenced by the overall market condition but also by CEOs' decisions (Jensen and Meckling, 1976; Davidson, 1981; Roll, 1986; Scharfstein and Stein, 1990; Haspeslagh and Jemison, 1991; Haunschild, 1994; Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Sitkin and Pablo, 2004; Harford, 2005). Playing a central role in the organisation, CEOs are heavily involved in each part of the takeover process. CEOs use their knowledge and experience to analyse the economic environment and imprint their personal mark on the firms' decisions (Davidson, 1981; Jensen, 1986b; Roll, 1986; Haspeslagh and Jemison, 1991; Haunschild, 1994; Finkelstein and Hambrick, 1996; Jovanovic and Rousseau, 2001; Sitkin and Pablo, 2004). Therefore CEO objectives, behaviours and personal attributes should not be overlooked in analysing M&As.

Nevertheless, CEO values, characteristics and cognitive behaviours cannot be directly measured (March and Simon, 1958; Cyert and March, 1963; Hart and Holmström, 1986; Bertrand and Schoar, 2003). Unlike stakeholders who can vary their investment portfolio to minimise firm-specific risk, managers' earnings are largely derived from the compensation contract. For this reason, CEO pay is one of the most frequently used proxies that incorporates managers' personality traits and power

(Hogan and McPheters, 1980; Agarwal, 1981; Frank, 1985; Finkelstein and Hambrick, 1989; Core et al., 1999; Bertrand and Schoar, 2003; Bugeja et al., 2012).

Interestingly, it has been argued that CEO pay disparity can reveal more information on CEO personal traits, judgement and behaviours than their own remuneration (Festinger, 1954; Goodman, 1974; Wade et al., 2006). There are several alternative explanations for this argument. Firstly, it is because individuals tend to consider their earnings as the measure of capabilities and achievements. CEOs would demand a greater pay difference if they believe in their superior capacities. Thus, being paid a widely different amount to other managers gives CEOs a sense of being recognised, which affects their attitude and decisions (Festinger, 1954; Adams, 1963; Goodman, 1974; Greenberg, 1990; Pfeffer and Langton, 1993; Folger and Cropanzano, 1998; Janssen, 2001; Bloom and Michel, 2002; Brown et al., 2003; Wade et al., 2006; Fredrickson et al., 2010). Secondly, CEO pay discrepancy carries information about the comparable skills and accomplishments among CEOs and other directors who also play a crucial role in the corporate operation (Crystal, 1992; Hayward and Hambrick, 1997; Ezzamel and Watson, 1998; Khurana, 2004; Bebchuk and Fried, 2006; Finkelstein et al., 2009; Fong et al., 2010). Thirdly, CEO pay disparity reflects firms' monitoring towards CEO incentive, whether it facilitates the alignment of interest among agents and principals, or it allows CEOs to have a significant command over the board to obtain a lucrative compensation package (Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Hayward and Hambrick, 1997; Core et al., 1999; Bebchuk and Fried, 2003; Weisbach, 2007). Therefore, in the present study, CEO pay disparity is used as a valid proxy to analyse the influence of CEOs on corporate takeovers.

CEO pay disparity is calculated based on compensation of the board in the financial year prior to the year of takeover announcement. Compensation is considered in three categories: the short-term or cash component, which consists of salary, bonus, superannuation and non-pecuniary benefits; the long-term compensation, which includes shares and stock options; and the total pay, which is the combination of the cash payment and long-term payment. The final payout, which is the amount paid to a CEO when the employment contract is terminated, is excluded from the calculation.

In this research, CEO pay disparity is operationalised in two different ways. Firstly, following Hambrick and D'Aveni (1992) and Siegel and Hambrick (2005), this research computes the *CEO Relative Pay to Directors (RelPay)*, which is the ratio of CEO pay to the average pay of the directors on the board, excluding CEO pay. Hambrick and D'Aveni (1992) find that CEOs earn very large disproportionate pay compared to other directors, suggesting an exaggerated sense of dominance, which is a precursor of corporate failure. Siegel and Hambrick (2005) claim that the wider pay gap tends to weaken the collaboration in the management team by promoting a tournaments for future positions and a better pay package, or by causing resentment towards the other officers. The ratio of CEO pay to the average pay of all directors on the board indicates the CEO skills and power relative to the quality of the whole management team. CEO pay is excluded from the nominator because some unusually extreme CEO pay packages might mask the wider pay dispersion among managers.

Secondly, this research applies Bebchuk et al. (2011) approach to calculate the *CEO Pay Slice to Directors (CPS)*, which is the percentage of compensation paid to the CEO out of the total compensation paid to all the directors on the board. Bebchuk et al. (2011) compare CEO pay to the total pay of the top five executives and find that the correlation between CEO pay slice and bidder announcement return is negative and statistically significant. Nonetheless, compared to the US, Australian companies have a smaller board size with fewer executive directors (Kiel and Nicholson, 2003; Bugeja et al., 2012). Therefore, using the ratio of CEO pay to that of the top five executives will significantly reduce the sample size. Moreover, it may also lead to potential sample selection bias because it is likely that the possibility of Australian firms assigning at least five executive directors is not random. Thus, to suit the common practice among Australian firms, this research modifies the CEO pay slice concept in Bebchuk et al. (2011) to compute the ratio of CEO pay to the total pay of all directors on the board. Capturing the firms' total expense on the management team, this ratio provides information not only on the managers' skills and incentives but also on the firms' monitoring mechanisms. This research executes another modification of Bebchuk et al. (2011) CEO pay slice in the robustness test, which compares CEO pay to the total pay of the top three executives.

4.2.2 Classify High and Low CEO Pay Disparity

To categorise high and low CEO pay disparity, this study compares the expected CEO pay disparity with the actual value using Ordinary Least Square (OLS) regression. Following the literature (Wade et al., 2006; Fong, 2010; Matolcsy and Wright, 2011; Brown et al., 2014; Seo et al., 2015; Bugeja, Matolcsy, Mehdi, et al., 2017), CEO pay disparity is estimated by controlling for a firm's economic and corporate governance practices. The model below is regressed on all Australian listed companies for the period from 2001 to 2015⁸ using compensation data obtained from SIRCA and Connect 4 Boardroom databases.⁹

$$\begin{aligned} RelPay(CPS) = & \beta_0 + \beta_1 IndMedRelPay(IndMedCPS) + \beta_2 LogBookValue \\ & + \beta_3 IndAdjTobinsQ + \beta_4 ROA + \beta_5 Leverage + \beta_6 ROAGrowth \\ & + \beta_7 SalesGrowth + \beta_8 Capex/Assets + \beta_9 BoardSize + \beta_{10} InsiderRatio \\ & + \beta_{11} CEODuality + [IndustryDummies] + [YearDummies] + \varepsilon \end{aligned}$$

(Equation 4.6)

The dependent variable, CEO pay disparity, is measured by two alternative variables: *Relative Pay to Directors (RelPay)*, which is the ratio of CEO pay over the average pay of the directors on the board, excluding CEO pay; and *CEO Pay Slice to Directors (CPS)*, which is the percentage of compensation paid to CEO out of the compensation paid to all the directors on the board. Both *RelPay* and *CPS* are computed in the three compensation categories: short-term or cash payment, long-term payment and total compensation in the financial year prior to the announced year. High and low CEO pay disparity is defined based on the residual of Equation 4.6. Firms with positive residuals are classified as paying their CEOs a high pay disparity, and a negative residual equals low pay disparity. This approach has been used to analyse CEO pay (Wade et al., 2006), CEO overpayment and underpayment (Fong, 2010), CEO relative standing (Seo et al., 2015) and CEO pay slice excess (Bugeja, Matolcsy and Spiropoulos, 2017). Matolcsy and Wright (2011) and Brown et al. (2014) also

⁸ Compensation of Australian firms is provided by SIRCA database from 2001 and by Connect 4 Boardroom database from 2004. Data from the two databases is combined, and company annual reports are cross-checked to increase the data accuracy and reduce missing observations.

⁹ See Appendix D for variable definitions and source of information.

follow this method to investigate the inefficiency of the compensation structures. They calculate the optimal manager pay depending on firm financials and CEO specifics, and then derive the excess pay by taking away this figure from the actual CEO pay. Any surplus of the actual pay disparity to the anticipated value calculated by Equation 4.6 can be interpreted in two ways. According to the *managerial power theory*, high pay disparity may be an indicator of the disproportionate or inefficient composition of the CEO compensation (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990; Bebchuk et al., 2011). In contrast, under the *efficient contracting theory*, it may reflect CEO skills, efforts and performance (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). Chapter 6 will discuss which theory holds in the Australian takeover market.

4.2.3 Determinants of CEO Pay Disparity

Previous research has established that CEO pay disparity is the product of a number of observable and unobservable factors. The first dimension in Equation 4.6 is the industry median CEO pay disparity, which controls for the effect of the managerial labour market or the benchmarking practice. The industry median CEO pay disparity is in the form of the *Industry Median CEO Relative Pay (IndMedRelPay)* or the *Industry Median CEO Pay Slice (IndMedCPS)*, respectively to the two measurements of CEO pay disparity. This reference point is not only critical to firms because they must compete to hire managers but also to managers because they are continuously being judged in the labour market (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Scharfstein and Stein, 1990; Murphy and Zábojník, 2004). Hence, how CEO pay disparity deviates from the industry median shows the external labour market's perception of managerial ability, performance and reputation (Chang et al., 2010). This reference has been found to relate to CEO's level of job satisfaction, affected employee compensation and propensity to turnover (Watson et al., 1996). Bebchuk et al. (2011) and Bugeja, Matolcsy and Spiropoulos (2017) find a positive impact of the industry median pay slice on CEO pay slice. Therefore, this research expects that industry

median CEO pay disparity positively relates to CEO pay disparity in a competitive managerial labour market.

The second group of dimensions relates to the complexity and growth potential of businesses, which require a high level of skill and effort from talented CEOs. According to Hart and Holmström (1986) “hidden action” model, manager’s capacity is difficult to access. Previous literature has documented a number of firm specifics that link CEO pay and CEO pay disparity with CEO responsibilities and performance (Mirrlees, 1976b; Holmström, 1979; Grossman and Hart, 1983; Core et al., 1999; Chang et al., 2010; Bebchuk et al., 2011; Bugeja, Matolcsy and Spiropoulos, 2017). Among the main determinants, *BookValue* (Total Assets) is included to represent firm size. Bugeja et al. (2012), Chalmers et al. (2006), Fleming and Stellios (2002), Izan et al. (1998) and Merhebi et al. (2006) claim a positive relation between firm size and CEO pay package. Similarly, Gabaix and Landier (2008) assert that CEO pay across firms, over time and between countries can be largely explained by firm size. *Industry Adjusted Tobin’s Q* (*IndAdjTobinQ*) is used as a proxy of firm value, which may have a positive impact on CEO pay (Gompers et al., 2003; Bebchuk et al., 2011; Banerjee et al., 2015). *Return on Assets* (*ROA*) is used as the proxy for recent performance. Sloan (1993) suggests that accounting returns are not significantly affected by the stock price variations as a result of the market-wide movements that are out of managers’ control. Bugeja et al. (2012), Chalmers et al. (2006) and Sloan (1993) find a positive correlation between return on assets and CEO compensation, whereas Bebchuk et al. (2011) report a similar correlation with CEO pay slice. *Leverage* appears in the equation to capture the ability of CEOs to manage firms’ debt. Ross (1977) develops a signalling model that investigates the correlation between leverage and firm quality. Because high leverage exposes the firms to the costs of financial distress, it is argued that high-quality managers are in demand to manage high leverage firms. In short, CEOs may require higher pay for governing firms of greater business complexity and better performance.

Signifying firms’ growth potential are *ROAGrowth*, *SalesGrowth* and *Capex/Assets*. By associating compensation to ROA growth and sales growth, shareholders can separate CEO pay from the influence of outside events on share price.

Khorana and Zenner (1998) and Bugeja et al. (2012) confirmed that sales growth and ROA growth lead to higher CEO pay. *Capex/Assets* is the ratio between capital expenditure and total assets, representing the funds used for additions to property, plant and equipment (Harford et al., 2008; Akhtar, 2016). *Capex/Assets* indicates the firm's internal reinvestment rate, which requires the corresponding CEO capacity to manage. In general, because managing sizeable firms, generating better returns and maintaining high growth are more demanding tasks, an increasing effect on CEO pay disparity could be expected.

The third set of control variables is to capture the board composition and the level of CEO power. *BoardSize* has been found to be positively related to CEO remuneration (Core et al., 1999; Chalmers et al., 2006). Eisenberg et al. (1998) find that smaller board size is more effective than larger board size. In contrast, a larger number of board members are perceived as a sluggish and bureaucratic system (Jensen, 1993; Yermack, 1996). Larger board size could result in the top managers imposing their power on the board of directors and influencing the pay contracts. However, as Coles et al. (2008) and Jensen (1993) argue on the U-shape correlation between board size and firm performance, this research conjectures that findings in other markets may not be valid in Australia where board size is smaller (Kiel and Nicholson, 2003; Bugeja et al., 2012). Accordingly, no prediction is made on the impact of board size on CEO pay disparity.

InsiderRatio is one of the commonly used indicators of governance in which a higher fraction of executive directors would present less effective monitoring (Rediker and Seth, 1995). This is because internal directors are more loyal to management and more prone to the influence of the CEO, thus the CEO can exercise more power over the board. In contrast, non-executive directors potentially conspire less with the CEO and thus lessen CEO dominance. Chalmers et al. (2006), Core et al. (1999), Hallock (1997) and Lambert et al. (1993) link a low insider ratio with weak governance practices, a positive association with CEO compensation. However, other studies cast doubt on the insider directors' ability to objectively govern the board (Mangel and Singh, 1993; Main et al., 1995; Borokhovich et al., 1996). Borokhovich et al. (1996) claim that non-executive directors will not certainly act for shareholders. Because

CEOs usually control the management nomination process, they may nominate non-executive directors who are more likely to support their decisions. Additionally, outside directors who have their expertise in a narrow field may be not willing to challenge the CEO on decisions outside that field of expertise. Main et al. (1995) suggest that many outside directors are CEOs in other firms. Therefore, they understand CEO incentives and behaviours. They may feel a reciprocal obligation to not judge the CEO. Taken together, no prediction is made on the correlation between insider ratio and CEO pay disparity.

CEODuality has been considered as an indicator of the prominence of the CEO to the board. CEOs who are also the chairman will be able to impose a higher dominance over other directors, hence they may expect higher pay (Adams et al., 2005; Wade et al., 2006). It has been stated that agency problems are higher when hubris managers have a tendency to keep power and also to act as the chairperson (Yermack, 1996). Stevenson and Radin (2009) demonstrate that duality lessens the effect of the remuneration committee. Therefore, it can be anticipated that CEOs with dual role of being chairman have more chance to pursue their own benefits. In contrast, the separate role of the CEO and chairman can reduce CEOs' influence on the board of directors. Alternatively, it may be argued that there are skills and efforts attached to the CEO duality that requires an increase in compensation (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). Core et al. (1999) associate duality with weak governance practices, which is positively affect CEO compensation. Therefore, this research anticipates a positive correlation between CEO duality and CEO pay disparity.

Finally, *IndustryDummies* and *YearDummies* are included in the estimate to control for unmeasured differences in CEO pay disparity across different industries during different periods of time.¹⁰ Murphy (1999) confirms that top manager

¹⁰ This study uses the GICS to categorise bidder and target industry. The ASX scheme was used prior to September 2002 and then replaced by GICS. For missing information and records prior to September 2002, annual reports of the announcement year are used to assign the firm to a GICS code by using the ASX's remapping guidance.

compensation is significantly different among different industries. Also, a competent CEO is reasonably in high demand in some particular industries or during a certain period of time (Agarwal, 1981).

4.3 TAKEOVER PREMIUM ANALYSIS

Previous research has established that takeover premiums, which present gains to targets, are greatly sensitive to both the market condition and firms' managers (Golbe and White, 1988; Haspeslagh and Jemison, 1991; Hayward and Hambrick, 1997; Dong et al., 2006; Bouwman et al., 2009). This section specifies the methodology used to investigate the impact of market optimism and CEO pay disparity on takeover premium.

Base on prior takeover premium analyses (Hayward and Hambrick, 1997; Fralich and Papadopoulos, 2017), the following regression is estimated over the final sample of takeover deals in Australia for the period from 2002 to 2015 to test the hypotheses H_{1a} on the impact of market optimism and H_{1b} on the influence of CEO pay disparity.¹¹

$$\begin{aligned}
 \text{Premium} = & \beta_0 + \beta_1 \text{OPT}(\text{RelPay}, \text{CPS}) + \beta_2 \text{RelativeSize} + \beta_3 \text{TargetROA} \\
 & + \beta_4 \text{BidderROA} + \beta_5 \text{BidderLEV} + \beta_6 \text{Diversification} + \beta_7 \text{HostileBid} \\
 & + \beta_8 \text{CashPayment} + \beta_9 \text{CompetingBid} + \beta_{10} \text{RevisedBid} \\
 & + \beta_{11} \text{BoardSize} + \beta_{12} \text{InsiderRatio} + \beta_{13} \text{CEODuality} + \beta_{14} \text{CEOTenure} \\
 & + \beta_{15} \text{CEOOwnership} + [\text{IndustryDummies}] + [\text{YearDummies}] + \varepsilon
 \end{aligned}$$

(Equation 4.7)

4.3.1 Variables of Interest

Takeover Premium

The dependent variable in Equation 4.7 is the acquisition premium (*Premium*) on an unaffected day prior to the announcement. It is calculated as the difference between the offer price and the target share price on an unaffected date which is 60

¹¹ See Appendix E for variable definitions and source of information.

days prior to the announcement, divided by pre-takeover share price, expressed in percentage.

$$BidPremium = \frac{Offer\ Price - Target\ Share\ Price\ 60\ days\ prior\ to\ announcement}{Target\ Share\ Price\ 60\ days\ prior\ to\ announcement} \times 100\%$$

(Equation 4.8)

The share price 60 days prior to the announcement is chosen to minimise the effect of share price volatility due to market chaos near announcement. This research uses the target share price 30 days before announcement to calculate takeover premium as a robustness test.

Market Optimism

The independent variable *OPT* is a dummy variable that takes the value of one if the takeover deal is announced in high optimism market (as identified in Section 4.1) and take the value of zero otherwise. The controversy about the impact of market optimism on takeover premium has raged unabated both theoretically and empirically.

According to the *neoclassical theory*, high market optimism is an efficient and highly liquid market that promotes asset reallocation following positive industry shocks (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001; Harford, 2005; Eisfeldt and Rampini, 2006). The neoclassical theory perceives CEOs to be rational agents who act for the interest of shareholders and who are not motivated to offer high bid premiums. On the contrary, under the *market misvaluation theory*, market optimism is attributable to the optimistic attitude of irrational investors who misvalue the share price (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006). The market misvaluation theory considers CEOs to be rational and able to take advantage of the market mispricing to achieve their personal interest. For that reason, it is highly possible that CEOs will offer high premiums to grasp these opportunities.

The market misvaluation theory's position on bid premium is broadly supported by Dong et al. (2006), Kendig (1997), Sadeghi and Ngyuen (2013) and Varaiya (1987). Dong et al. (2006) report that takeover premiums offered by higher valued bidders are 4.2% higher than that of their counterparts. Sadeghi and Ngyuen (2013) observe that higher valued bidders pay a 35.1% premium in comparison to a 33.4% premium paid by lower valued bidders. In contrast, Bouwman et al. (2009) find that deals conducted in high valuation markets have significantly lower premiums than those in low valuation markets. Similarly, Duong and Izan (2012) report lower gains to targets during merger waves. Specifically, the mean premiums of 24.62% and 16.30% are recorded for in-wave deals, which are roughly 2% and 4% lower than that of the non-wave transactions. Merger wave periods in Duong and Izan (2012) study are found to be the result of exogenous shifts in the economic environment, which is similar to some extent to the market optimism under the neoclassical theory. Given the conflicting theories and mixed empirical evidence, this research makes no prediction on the sign of the correlation.

CEO Pay Disparity

Two independent variables *RelPay* and *CPS* as proxies for CEO pay disparity are dummy variables derived from Equation 4.7. *RelPay* and *CPS* equal to one with positive residual, and zero otherwise.

The theoretical backgrounds on the impact of CEO pay disparity on takeover premium are rather contradictory. The *managerial power theory* claims that CEO pay disparity indicates the extent to which CEOs impose their dominance on the decision-making process and designing the pay package (Hayward and Hambrick, 1997; Bebchuk and Fried, 2003). The managerial power theory emphasises the CEO intention to pursue their own interest and the possibility for them to encounter human cognitive bias such as overconfidence and herding (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990). In this circumstance, it is likely that the CEO power allows them to conduct takeover deals at an unreasonable high price to achieve their personal goals. Therefore, a positive correlation between CEO pay disparity and takeover premium is anticipated. By comparison, the *efficient contracting theory*

asserts that high CEO pay disparity is to reward CEOs for their superior skills, to minimise the agency conflict and to reduce the cost of monitoring (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). Therefore, CEOs who earn a larger pay gap are expected to offer reasonable premiums corresponding to how they assess the transactions. Based on the efficient contracting theory, whether CEO pay disparity positively or negatively affects bid premium cannot be inferred.

Despite the fruitful evidence on the impact of CEO pay on corporate operation, investigation into the correlation between CEO pay disparity and takeover premium remains relatively limited. Supporting the managerial power theory, Hayward and Hambrick (1997) report that CEOs who earn higher compensation than the second highest paid executive offer large premiums to target shareholders. Datta et al. (2001) state that the long-term component of CEO pay disparity is negatively related to takeover premium. This research envisages a correlation between CEO pay disparity and bid premium; however, considering the diverse theoretical reasoning and the lack of empirical evidence, no prediction is made on the sign of the relation.

4.3.2 Control Variables

Relative Size

Relative size compares deal value at time of announcement to the bidder market value one month prior to announcement. Because there is relatively less information available about small targets, they are perceived to be riskier than large firms. Additionally, small firms are relatively less liquid than larger firms (Lakonishok and Smidt, 1986). Therefore, a higher premium is demanded for small deals to bear the estimation risk and liquidity risk (Klein and Bawa, 1977; Banz, 1981; Zeghal, 1984; Bradley et al., 1988). Moreover, Alexandridis et al. (2013), Jaggi and Dorata (2006), Moeller et al. (2004) argue that the complexity of incorporating large size businesses can make potential synergies from the acquisitions more susceptible, and consequently lead to a lower premium. Moeller et al. (2004) argue that larger acquirers overpay since managerial hubris is more of a problem in larger firms. Previous studies have documented that larger targets are negatively correlated to bid premium in Australia

(Anderson et al., 1994; Bugeja, 2015). Thus, this research predicts a negative relationship between *RelativeSize* and takeover premium.

Return on Assets

Return on assets are included to account for recent performance of acquirers and targets in the financial year prior to the transactions. On the one hand, one motive for takeover is the replacement of the target's inefficient management. The lower the performance of the target before the transaction, the increase in likelihood that the takeover will lead to an improvement in the combining firm performance. Accordingly, the greater chance that the target shareholders will share the gain through a higher premium is expected (Lang et al., 1989; Servaes, 1991; Bugeja and Walter, 1995). Hence, it is anticipated that takeover premium is negatively related to *TargetROA* prior to the announcement. On the other hand, the ability of the bidders' managers to successfully manage the firms may affect takeover premium. A better performing bidder prior to the announcement indicates greater management ability and promising synergies. As such, target shareholders would require a greater portion from the larger total increments to be shared between the two parties (Lang et al., 1989; Servaes, 1991; Bugeja and Walter, 1995). Consequently, a positive correlation is predicted on the correlation between *BidderROA* prior to the transaction and takeover premium.

Bidder Leverage

Maloney et al. (1993) claim that higher leverage prevents CEOs from processing value-decreasing transactions. Hence, it can be implied that managers are reluctant to pay high bid premiums. Bugeja et al. (2016) argue that high leverage indicates greater difficulty in arranging funds to finance an acquisition thus requiring managers to carefully take the cost of the deal into consideration. Lang et al. (1991) report a negative correlation between acquirers' leverage ratios and returns to target shareholders. Taken together, this research predicts a negative correlation between *BidderLEV* and takeover premium.

Diversification

Diversification is included to capture the potential of the synergy. It has been widely argued that acquiring firms in the different industry will influence the offer price (Jensen, 1986a; Shleifer and Vishny, 2003). Because the offer price not only depends on the manager's expertise but also on the manager's incentive for making takeover decisions, managers may conduct unrelated deals for personal incentive at the cost of shareholders, and thus may be willing to overpay for the deals (Morck et al., 1990). It can also be the case that managers want to diversify the firms' business to indirectly diversify their personal portfolio. Additionally, at the threat of bankruptcy or liquidation, managers may want to start a new business segment to ensure the survival and continuity of the firm. Furthermore, at the likelihood of turnover, managers may enter a new business with the expectation of enhancing the firm performance (Shleifer and Vishny, 2003). However, if CEOs act for the interest of shareholders, they will rationally evaluate the prospect of the synergy and pay for the deal accordingly (Lazear and Rosen, 1981; Murphy and Zábajník, 2004; Chang et al., 2010). Based on the above mixed arguments, no prediction is made on the impact of *Diversification* on takeover premium.

Hostile Bid

Hostile bid reflects the acquiring firm's strategy in response to the potential or actual target defence (Schwert, 2000). A hostile takeover is initiated when the success rate of a friendly negotiation is low (Schwert, 2000). This decision could result in a higher price being offered to target shareholders. Hostile takeovers happen when targets decide to publically reject the offers. Consequently, a reject recommendation by the target's managers could increase the possibility of a price rise by the acquirers (Bugeja and da Silva Rosa, 2010). However, previous findings are diverse. While Bugeja and da Silva Rosa (2010) and Franks and Mayer (1996) find that hostile takeover is positively related to bid premium, Hayward and Hambrick (1997) and Henry (2005) fail to reveal a correlation between the two variables. Therefore, no prediction is made on the impact of *HostileBid*.

Cash Payment

The literature provides mixed evidence on the association between method of payment and takeover premium. Lefanowicz et al. (2000), Schwert (2000), Walkling (1985) and Wansley et al. (1983) find that cash payment leads to higher takeover premium. One possible reason is that the quicker processing time for cash payments reduces the threat of competitors, compared to the delays related to the stock exchange regulation. As a result, bidders are likely to offer a higher price to take the relative advantages of a cash-financing deal (Andrade et al., 2001; Fuller et al., 2002; Moeller et al., 2004). In contrast, Schwert (1996) find that cash payment is negatively related bid premium. Bugeja et al. (2016) observe that the sign of the correlation between cash-financing and bid premium is not consistent across unaffected dates ranging from five days to two months prior to announcement. Hence, no prediction is made on the impact of *CashPayment* on takeover premium.

Competing Bid

Competing bid is an indicator of the bargaining strength of the buyer or the degree to which acquirers face competition from rivals. The actual competition will induce bidders to pay more when there is target resistance (Officer, 2003; Bhagat et al., 2005; Bugeja and da Silva Rosa, 2010). However, potential competitors will be discouraged to enter the battle if the first bidder overpaid on his offer (Varaiya, 1987). In this case, multiple bidders will not lead to higher bid premium (Eckbo, 2010). Because data on potential competitors cannot be obtained, no prediction is made on the impact of *CompetingBid*.

Revised Bid

Bid revision reflects bidders' reconsideration on the takeover offer. De et al. (1996) state that offer revision may be the result of potential rivals. An upward revision may happen if the acquirer is tentative that target share price movements reflect private information about other bidders during the negotiations (Schwert, 1996). Moreover, the extra direct and indirect cost associated with a revised bid may make the deal more

expensive. Hence, this research predicts an increase in bid premium associated with *RevisedBid*.

Board Size

It has been argued that smaller boards are associated with lower management capability (Lipton and Lorsch, 1992; Jensen, 1993). In contrast, larger size boards can be less efficient when the advantages of increasing the monitoring role of larger boards are diminished by the inefficient negotiations and decision-making process. Specifically, when board size is too large, agency issues may become severe and boards tend to loosen their monitoring and control duties (Lipton and Lorsch, 1992; Jensen, 1993). As a result, a larger board size inclines to a lower monitoring of management and trade-off shareholder interests to offer a higher price (Linck et al., 2008; Bugeja, Matolcsy, Mehdi, et al., 2017). Hence, *BoardSize* is predicted to be positively related to bid premium.

Insider Ratio

Higher insider ratio is an indicator of a lower level of board independence (Fama, 1980; Dalton and Kesner, 1987; Walsh and Seward, 1990; Pearce and Zahra, 1992; Rhoades et al., 2000; Wright et al., 2002; Roberts et al., 2005). It has been found that a low insider ratio is considered to heighten the level of board vigilance. In contrast, a large proportion of insiders allows CEOs to have the ability to influence the board because it is less likely for inside managers to go against a CEO's decisions (Weisbach, 1988). Therefore, it is expected that *InsiderRatio* is negatively related to bid premium.

CEO Duality

The board of directors acts as a monitoring device to ensure that top managers make decisions in the interest of shareholders. It is found that CEO duality weakens board vigilance because the board cannot efficiently monitor the CEO. Moreover, CEOs who are also the chairman have the ability to formally and informally influence the board, as well as to manage how information is transferred to other directors (Finkelstein and D'aveni, 1994; Hayward and Hambrick, 1997; Desai et al., 2003). As

a result, *CEODuality* reduces board monitoring effectiveness and a higher bid premium is anticipated.

CEO Tenure

According to the managerial power theory, CEO tenure is one source of manager power (Desai et al., 2003; Masulis et al., 2007; Teti et al., 2017). The longer the CEO is in the position, the larger the number of board members nominated during his era. Consequently, the board is embedded with loyal and sympathetic members to their top manager, which enhances the CEO control over the board decisions including how much to pay for a takeover deal (Finkelstein and Hambrick, 1989). However, according to the efficient contracting theory, longer CEO tenure associates with more experienced and skilful management (Walters et al., 2007). Hence, this research makes no prediction on the influence of *CEOTenure* on takeover premium.

CEO Ownership

According to the efficient contracting theory, CEO ownership has an impact on bid premium because it represents the alignment of interests between the agent and the principal (Lazear and Rosen, 1981; Murphy and Zábojník, 2004; Chang et al., 2010). For the benefits of shareholders, the manager will pay a fair price in a takeover. Hence, a negative relation between CEO ownership and takeover premium is supported (Hubbard and Palia, 1995; Datta et al., 2001). However, the managerial power theory explains that higher stock ownership is associated with higher managerial bargaining strength, which allows CEOs to place a higher offer price than the real value of the target (Jensen, 1986a, 1988; Hayward and Hambrick, 1997). Based on these two contradictory views, no prediction on the impact of *CEOOwnership* on bid premium is given.

4.4 BIDDER PERFORMANCE ANALYSIS

There are four main methods to assess acquirer returns: the short-term window event, the long-term window event, long-term accounting measures and subjective performance measures (Zollo and Meier, 2008). Event study approach is the common

methodology used in prior research to assess acquirer performance (Masulis et al., 2007; Antoniou, Jie, et al., 2008; Bouwman et al., 2009; Akhtar, 2016). Event studies centre on the effect of firm-specific events on the share price movement, by computing abnormal returns relative to a chosen benchmark (Brown and Warner, 1985; Barber and Lyon, 1997; MacKinlay, 1997; Lyon et al., 1999). Corporate events can be dividend payout, stock splits, mergers and acquisitions, or equity offerings. To evaluate the impact of market optimism and CEO pay disparity, this study assesses bidder post-takeover performance using both the short-term window event approach and the long-term window event approach.

4.4.1 Calculating Cumulative Abnormal Returns

This section proposes the method to evaluate bidder performance using the short-term window event approach. The short-term window event method has the prominent benefit of avoiding potential turmoil and has been adopted by a number of studies (Mitchell and Lehn, 1990; Kaplan and Weisbach, 1992; Moeller et al., 2005; Masulis et al., 2007). Since the objective of this study is to assess the impact of market optimism and CEO decision, short-term returns, which reflect the immediate market expectation to the takeover announcement, is suitable for the investigation.

To estimate the market's reaction around takeover announcement, the three-day cumulative abnormal returns (CARs) are calculated. Fuller et al. (2002) suggest that the three-day event analysis is sufficient to measure the acquisition value effect while minimising the disturbance of other events that may drive the share returns. A share price return can only be suggested to be "abnormal" in relation to a specific reference. There are a number of approaches to measure the effect of an economic event surrounding announcement at daily intervals. Brown and Warner (1985) compare three traditional approaches, namely, the Mean Adjusted Returns model, the OLS Market model and the Market Adjusted Returns model (Modified Market model). The first model, the Mean Adjusted Returns model, compares the return for share i at day t with the average of that share's daily returns in the estimation period before the announcement. The second model, the OLS Market model, compares the returns for share i at day t with the residual from the regression of share i 's prior to announcement

return over the return of the market portfolio during the estimation period. The third model, the Modified Market model, compares the return for share i at day t with the return on the equally weighted index for day t . Brown and Warner (1985) suggest the selection of model should depend on the event's features. It is worth noticing that the first and the second model requires an estimation period to be a normal performance period that is not affected by the event being examined to provide a fair estimation of benchmark returns (Brown and Warner, 1985).

In practice, to make a reasonable estimation, the pre-event period can typically be selected to be long enough, which is up to 239 days (-244 through -6) or a 250 trading day period before the event window (Brown and Warner, 1985; MacKinlay, 1997). It is highly possible that there are a number of companies who engage in a takeover offer prior to announcement that may bias the measurement of the market model (Brown and Warner, 1985). In other words, if there are other takeover events to be incorporated in the estimation period, the calculation is less meaningful. For this reason, the Modified Market model is chosen to compute daily abnormal returns for bidders by taking away the value weighted index return, which results in the announcement abnormal returns.

The first step is to estimate the abnormal returns (ARs) of companies' share returns three days around the announcement:

$$AR_{i,t} = R_{i,t} - R_{m,t}$$

(Equation 4.9)

Where:

$AR_{i,t}$ is the excess return of bidder i on day t

$R_{i,t}$ is the return of bidder i on day t

$R_{m,t}$ is the market return estimated as the percentage change in All Ordinaries Index on day t

$R_{m,t}$ is obtained from Datastream database based on the market return index ($RI_{m,t}$), which is the growth in value of stock holding, calculated based on the share price appreciation and gross dividend.

$$RI_{m,t} = RI_{m,t-1} \times \frac{PI_{m,t}}{PI_{m,t-1}} \times \left(1 + \frac{DY \times f}{n}\right)$$

(Equation 4.10)

Where:

$RI_{m,t}$ is market return index on day t

$RI_{m,t-1}$ is return index on previous day

$PI_{m,t}$ is price index on day t

$PI_{m,t-1}$ is price index on previous day

DY is dividend yield of the price index

f is grossing factor

n is number of days in financial year

$R_{m,t}$ is calculated by the following equation:

$$R_{m,t} = \frac{RI_{m,t} - RI_{m,t-1}}{RI_{m,t-1}} \times 100$$

(Equation 4.11)

Where:

$R_{m,t}$ is market return rate on day t

$RI_{m,t}$ is market return index on day t

$RI_{m,t-1}$ is market return index on the previous day

In the next step, cumulative abnormal returns (CARs) are computed as the sum of the abnormal returns ($AR_{i,t}$) during the three days around announcement as indicated by the following equation:

$$CAR [-1, 1] = \sum_{t=-1}^{t=+1} AR_{i,t}$$

(Equation 4.12)

Where:

$AR_{i,t}$ is the excess return of bidder i on day t

$CAR[-1, 1]$ is the CARs of bidders three days surrounding announcement

4.4.2 Calculating Buy-and-Hold Abnormal Returns

This research analyses the bidder one-year and two-year post-takeover returns. Literature has documented that abnormal returns can be calculated as the return on a sample firm less the return on a reference portfolio or control firm (Barber and Lyon, 1997; Lyon et al., 1999). This emphasises that an appropriate benchmark is needed to arrive to an appropriate conclusion on firm performance. Barber and Lyon (1997) point out that the reference portfolio approach may lead to three potential biases. Firstly, *new listing bias* may occur because in event studies of abnormal returns in the long term, sample firms normally have a long history of returns prior to the corporate event. However, the reference portfolio, which may be an index, an industry sample or a size decile sample, generally constitutes new firms that start listing after the event month. It is highly possible that new market participants underperform the market averages, which leads to a positive bias when comparing the returns of the sample firms with the returns of the reference sample (Barber and Lyon, 1997; Lyon et al., 1999). Secondly, *rebalancing bias* may arise because of the nature of computing the returns of the reference portfolio, which may be either the equally weighted market index or value weighted market index (Barber and Lyon, 1997; Lyon et al., 1999). This calculation is characterised by periodic rebalancing while the returns of sample firms are computed without rebalancing. The periodic rebalancing process involves the change in proportion of overperforming firms and underperforming firms because of M&A activities, which elicit unequal comparison with the stability of the sample firms (Barber and Lyon, 1997; Lyon et al., 1999). Thirdly, the *skewness bias* is a result of the new listing bias and rebalancing bias when comparing the reference portfolio

returns with the sample returns. To avoid the above-mentioned biases, this research follows Barber and Lyon (1997) to use the control firm approach. Applying this approach, both the sample and control firm are listed in the announced month and both the sample and control firm returns are calculated without rebalancing thus make them appropriately comparable.

There are three methods of identifying a control firm, including matching a sample firm to a similar market value of equity firm, matching a sample firm to a control firm with the closest book-to-market ratio, or matching a sample firm to a control firm of similar size and book-to-market ratio. Barber and Lyon (1997) prove that matching sample firms to control firms of similar size and book-to-market ratios reports the best results in all the samples that they examined. Following Barber and Lyon (1997) and Lyon et al. (1999), the one-year and two-year post-takeover buy-and-hold returns (BHRs) are calculated after controlling for survival, size and book-to-market ratio for each acquiring firm in the sample that survives for 24 months post-announcement period. The matching procedure of a sample firm to a control firm of similar size and book-to-market ratio is described below.

1. Identify all firms listed on the ASX that were not delisted and had share return index and book-to-market ratio data available over the announcement month to two-year post-takeover period.

2. Identify all companies with a market capitalisation ranging from 70% to 130% of that of the bidder at the beginning of the month prior to the announcement month.

3. From the above set of companies, select the company with a closet book-to-market ratio to the sample firm, at the beginning of the month prior to the announcement month.

4. Calculate the one-year and two-year BHRs of the control firm.

Steps 2 to 4 in the above process are repeated for every firm in our sample.

A sample firm's buy-and-hold abnormal returns (BHARs) is then computed by comparing the BHRs of the acquiring firm to the BHRs of its control firm. Only firms

with available data of return index and book-to-market ratio over the event window are considered.

$$BHAR_{iT} = R_{iT} - E(R_{iT}) \quad (\text{Equation 4.13})$$

Where:

$BHAR_{iT}$ is the size and book-to-market adjusted BHARs for firm i over T months, computed as the difference between BHRs of the sample firm and the BHRs of its control firm of similar size and book-to-market ratio

R_{iT} is the monthly buy-and-hold return for firm i

$E(R_{iT})$ is the monthly buy-and-hold return of the control firm assigned to firm i over T months

T represents the horizon in month over the one-year and two-year post-takeover period.

4.4.3 The Impact of Market Optimism and CEO Pay Disparity on Bidder Performance

Following Hayward and Hambrick (1997) and Bouwman et al. (2009), multivariate regressions are run to test the *Hypothesis H_{2a}* and *Hypothesis H_{3a}* on the impact of market optimism and *Hypothesis H_{2b}* and *Hypothesis H_{3b}* on the influence of CEO pay disparity on bidder post-takeover returns.¹²

$$\begin{aligned} CAR(BHAR) = & \beta_0 + \beta_1 \text{Optimism}(\text{RelPay}, \text{CPS}) + \beta_2 \text{Premium} + \beta_3 \text{RelativeSize} \\ & + \beta_4 \text{TargetROA} + \beta_5 \text{BidderROA} + \beta_6 \text{BidderLEV} + \\ & + \beta_8 \text{Diversification} + \beta_{19} \text{HostileBid} + \beta_{10} \text{CashPayment} \\ & + \beta_{11} \text{CompetingBid} + \beta_{12} \text{RevisedBid} + \beta_{13} \text{SuccessfulDeal} + \beta_{14} \text{BoardSize} \\ & + \beta_{15} \text{InsiderRatio} + \beta_{16} \text{CEODuality} + \beta_{17} \text{CEOTenure} \\ & + \beta_{18} \text{CEOOwnership} + [\text{IndustryDummies}] + [\text{YearDummies}] + \varepsilon \end{aligned} \quad (\text{Equation 4.14})$$

¹² See Appendix E for variable definitions and source of information.

4.4.3.1 Variables of Interest

The dependent variable *CAR* is the three-day CARs surrounding the announcement, calculated by applying methodology specified in Section 4.4.1. The dependent variable *BHAR* is the one-year and two-year BHARs, computed by following the steps in Section 4.4.2.

Market Optimism

The independent variable *Optimism* is a dummy variable, classified in Section 4.1. The *neoclassical theory* perceives market optimism to be an economic expansion period featuring a low transaction cost, highly liquid and efficient market. Market optimism is the result of positive industry shocks associated with an optimistic view about the prospect of the potential synergies that smooth the asset reallocation and trigger transactions (Jovanovic and Rousseau, 2001; Harford, 2005). In this environment, managers of the acquiring firms act for the benefit of shareholders, thus making both the industry and the firm specifics of M&As to be fundamental (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001). For this reason, under the neoclassical view, transactions initiated in high optimism markets are at least equal or outperform the deals conducted in low optimism periods, both in the short term and the long term (Eckbo, 1983; Mitchell and Mulherin, 1996; Rosen, 2006). Conversely, the *market misvaluation theory* identifies market optimism as period of turmoil generated by overly optimistic investors who misprice the firm shares (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006). At the same time, managers are able to exploit the market to benefit from short-term stock sentiment. However, such transactions are value-destroying in the long term because of the market correction and the missing economic reason of the transaction (Dong et al., 2006; Bouwman et al., 2009; Croci et al., 2010). Based on the above conflicting evidence, no prediction is made on the impact of market optimism on bidder performance.

CEO Pay Disparity

CEO pay disparity is measured by two alternative independent variables, *RelPay* and *CPS*, which are dummy variables specified in Section 4.2.

The *managerial power theory* implies that CEO pay disparity is negatively correlated to the acquirer returns. The managerial power theory proposes that a greater pay difference not only represents CEO self-incentive and power but also indicates a weak corporate governance within the organisation (Jensen, 1986a; Roll, 1986; Jensen, 1988; Scharfstein and Stein, 1990; Hayward and Hambrick, 1997). Fama and Jensen (1983) and Jensen and Meckling (1976) state that CEOs process the deals to enlarge their empire, whereas Roll (1986) and Scharfstein and Stein (1990) argue that CEOs are highly affected by entrenchment and information cascades in the form of contagion, imitation or herding (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990; Hayward and Hambrick, 1997; Bebchuk and Fried, 2003). The above reasons lead to transactions that are expensive and non-fundamental, thus harming shareholder wealth both in the short term and the long term. Conversely, the *efficient contracting theory* predicts that high CEO pay disparity is positively correlated to bidder performance. This view is based on the existence of the optimal pay contracts that reflect the supply and demand of the managerial labour market and align the interest of managers and shareholders (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). CEOs who earn larger pay disparity are expected to use their superior skills to efficiently estimate the potential synergies, to make a fair offer to target shareholders and to generate wealth for the acquiring firms. Given the above contradiction, this research anticipates the correlation between CEO pay disparity and bidder returns but does not predict the sign of the correlation.

4.4.3.2 Control Variables

Bid Premium

It has been argued that takeover premium, which present gains to target shareholders, have an impact on bidder post-takeover returns (Hayward and Hambrick,

1997). Target shareholders usually demand certain premiums for the prospective synergy gains (Grossman and Hart, 1980). A large premium indicates that bidders pay more than the current market price of the target. This overpayment may subsequently lower acquirer post-takeover returns (Hayward and Hambrick, 1997). If acquirers offer a higher offer price to target stockholders than the actual value, the costs to the acquirers are much higher than the gains to the market short-term traders (Schwert, 1996). Therefore, it is predicted that *Premium* is negatively associated with bidder performance.

Relative Size

It has been proved in the literature that relative size influences the abnormal returns to the bidding firm (Asquith et al., 1983; Eckbo et al., 1990; Moeller et al., 2004). It has been argued that dealing with smaller targets is associated with lower related costs, which ultimately results in better bidder performance (Travlos, 1987; Anderson et al., 1994). In contrast, the larger the deal, the greater the value that takeovers destroy from shareholder wealth (Loderer and Martin, 1990; Morck et al., 1990; Grinstein and Hribar, 2004; Harford and Li, 2007; Alexandridis et al., 2013). In the first place, large takeover deals can lead to critical issues and corresponding expenses related to the complicated post-takeover incorporation procedure, which obstructs the recognition of the synergies. Moreover, Alexandridis et al. (2013) observe high level of acquirer return uncertainty of large size transactions, indicating that markets associate large deals with higher risks. Accordingly, *RelativeSize* is expected to be negatively related to bidder performance.

Return on Assets

Return on assets are used to control for the financial performance of targets and bidders as well as the potential prospect of the combining firms. Morck et al. (1990) propose that bidding firms with better returns before announcement indicate greater management ability, hence make better acquisitions. Fields et al. (2007) and Rosen (2006) find a positive relation between bidder ROA prior to announcement and bidder post-takeover returns. In other words, it is highly possible for better performing acquirers to pick up targets that are perceived more favourably by the market.

Regarding the effect of recent target performance, Lang et al. (1989) and Servaes (1991) contend that the worse the performance of the target firm prior to the takeover, the larger the chance that a takeover will lead to an improvement in the firm returns. As a result, it is predicted that *BidderROA* positively relates to bidder performance whereas a negative impact on *TargetROA* is anticipated.

Bidder Leverage

Bidder leverage is controlled because it relates to the free cash flow and financial choice of the acquirers (Masulis et al., 2007). Moreover, it is likely that the higher leverage ratio prevents managers from conducting value-destroying transactions (Humphery-Jenner and Powell, 2011). The possible explanation is that the higher the leverage, the closer the managers are scrutinised by the creditors, the less cash flow there is to spend. As a result, there is a reduced probability that value-decreasing deals will be undertaken (Maloney et al., 1993). Maloney et al. (1993) report that bidders' leverage ratios are positively related to bidder returns. Consequently, it is expected that *BidderLEV* is positively related to bidder performance.

Diversification

Diversification has been claimed to be one factor that destroys acquirer value (Jensen, 1986a; Morck et al., 1990; Shleifer and Vishny, 2003). Managers may acquire firms in unrelated industries for their own benefits or for shareholder wealth. However, managers of the acquiring firms may not have the expertise required in the target industry to run the business efficiently post the takeover (Jensen, 1986a). Consequently, it is expected that *Diversification* lower bidder performance, especially in the long term.

Hostile Bid

Bid attitude has been cited as one factor that can affect bidder performance (Hirshleifer and Titman, 1990; Bugeja and Walter, 1995; Franks and Mayer, 1996; Officer, 2003). Making a hostile bid is a strategic approach for the acquirers. It is probably based on an expectation of a more desirable outcome than through friendly

negotiations (Sudarsanam and Mahate, 2006). Alternatively it can be the result of CEO entrenchment to win the takeover contest (Hirshleifer and Titman, 1990). It is documented that hostile bids, on the one hand, can force CEOs to pay a higher bid premium, while on the other hand, can lead to target resistance and, ultimately, a poor performance. (Hirshleifer and Titman, 1990). The equivalent findings have been presented by Alexandridis et al. (2013) over bidder abnormal returns. Therefore, a negative correlation between *HostileBid* and bidder performance is predicted.

Cash Payment

The method of payment is a determinant factor of takeover premium and acquirer performance in takeovers studies (Bouwman et al., 2009; Petmezas, 2009; H. K. Baker et al., 2012). According to the Myers and Majluf (1984) pecking order theory, companies often issue ordinary shares in case of overvaluation by the market. This allows managers to realise gains in the short term from market sentiment in stock-financed deals. However, these transactions harm shareholder wealth when market correction happens in the long term (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). In contrast, cash payment is the preferred method if bidder shares are undervalued, which benefits the shareholders with share price recovery in the long horizon (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). Consequently, takeovers that are financed by cash possibly result in a higher performance in the long term than that of stock-financed deals (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006). For this reason, a positive impact of *CashPayment* on bidder performance is anticipated.

Successful Deal

Offer outcome has been proven to be one of the factors that influences the bidder performance (Dodd and Ruback, 1977; Asquith et al., 1983; Bradley et al., 1988). A successful deal unlocks synergies and results in the combination of assets and resources, the potential benefits of the economies of scale and the enhancement of production efficiency (Asquith et al., 1983). Moreover, processing an unsuccessful deal is not cost free since the acquirer depletes the firm's resources without any

outcome. The ultimate result could be a depreciation impact on shareholder wealth (Bradley et al., 1988). As such, a positive correlation between *SuccessfulDeal* and bidder performance is expected.

Competing Bid

Competition can be in the form of actual competition or potential competition (Varaiya, 1987). Actual competition occurs when multiple rivals bid for the target, while potential competition happens when bidders overbid for the target, preventing the entrance of other market participants (De et al., 1996; Schwert, 2000). Bradley et al. (1988) argue that larger potential synergic gains attract the presence of multiple bidders and the winner should be able to generate the best assets reallocation. Hence, a positive correlation between *CompetingBid* and bidder performance is anticipated.

Revised Bid

There are several reasons for takeover offers to be revised. Firstly, acquiring firms may observe the stock price movements of all parties involved in a deal, reevaluate the information and adjust the offer accordingly (De et al., 1996). Secondly, the presence of actual competitors or the threat of potential rivals may pressure the acquirer to increase the price to win the contest (De et al., 1996). However, processing a bid revision is costly as it incurs both direct costs including fees to investment bankers, counsels and consultants, and indirect costs such as loss of executive time (De et al., 1996). For the above reasons, it is indicated that *RevisedBid* is negatively related to bidder returns.

Board size

Findings on the correlation between board size and firm performance are mixed. While Yermack (1996) and Chan and Emanuel (2011) evidence a negative relation between board size and firm performance, Dalton et al. (1999) observe a positive effect. One possible explanation is the existence of a U-shape correlation, in which the greater number of directors may bring increased skills and competence to the board, but after a specific point, the dynamics of a large size offset the advantage (Jensen,

1993; Coles et al., 2008). On the other hand, it can be claimed that when the board composition is taken into consideration, it overwrites the effects of board size on firm performance (Dalton et al., 1999). Accordingly, no prediction is made on the impact of *BoardSize* on bidder performance.

Insider Ratio

It has been argued that non-executive directors should have a higher level of independence, as required for better information, transparency and tighter monitoring (Fama, 1980; Dalton and Kesner, 1987; Walsh and Seward, 1990; Pearce and Zahra, 1992; Rhoades et al., 2000; Wright et al., 2002; Roberts et al., 2005). Alternatively, Baysinger and Hoskisson (1990), Dalton and Kesner (1987), Donaldson and Davis (1991), Ruigrok et al. (2006) and Wagner III et al. (1998) argue that executive directors have a deeper understanding of corporate activities and better capability to evaluate the manager's decisions. Meanwhile, other researchers find that the proportion of executive directors does not influence bidder returns (Baysinger and Butler, 1985; Hermalin and Weisbach, 1991; Bhagat and Black, 2001). The reason for this seeming contradiction is that executive and non-executive directors offer different sets of skills to the board. When there is no domination of either type their cooperation creates better board monitoring (Hermalin and Weisbach, 1991; Daily and Dalton, 1993; Yermack, 1996; Beiner et al., 2004). All things considered, no prediction is made on the impact of *InsiderRatio* on bidder performance

CEO Duality

It is suggested that the board does not function efficiently when one top manager performs the function of both the CEO and the chairman (Mizruchi, 1983). CEO duality leads to CEO entrenchment and a board dependence from management (Fama and Jensen, 1983; Pearce and Zahra, 1991; Roberts et al., 2005). As a result, board vigilance is weaker and it may be more difficult to analyse the effectiveness of corporate decisions and management (Fama and Jensen, 1983; Pearce and Zahra, 1991; Roberts et al., 2005). Consequently, a negative correlation between *CEODuality* and bidder performance is predicted.

CEO Tenure

CEO tenure is considered to be one of the determinant factors of firm post-takeover performance (Walters et al., 2007; Yim, 2013). CEO tenure is directly related to CEO knowledge, experience and skills, which are of substantial importance in M&As. While early career CEOs may still be in the learning curve and lack of experience, longer tenured CEOs may be slower in acquiring and processing information. CEOs who are long in their position may accumulate power over the board because of their informal relationships with the other directors. This may create a higher chance that CEOs act for other purposes other than increasing shareholder wealth (Walters et al., 2007). However, Shen (2003) recommends that board vigilance can distort the effect of CEO tenure on bidder performance. For this reason, no specific correlation between *CEOTenure* and bidder performance is anticipated.

CEO Ownership

Jensen and Meckling (1976) and Lewellen et al. (1985) argue that as CEO ownership increases, the interests of managers and shareholders converge and, therefore, agency conflicts are likely to be resolved. Higher ownership encourages managers to maximise shareholder value rather than simply pursue strategies that will offer them personal benefits. Giving managers a larger share of ownership requires them to be a part of the costs of poor decisions (Jensen and Meckling, 1976; Lewellen et al., 1985). For this reason, *CEOOwnership* is predicted to have positive effect on bidder performance.

4.5 THE INTERACTION BETWEEN MARKET OPTIMISM AND CEO PAY DISPARITY

It has been widely accepted in the corporate literature that managers act as the filter for the extent to which the outer economic environment affects the internal resources (Hambrick and Mason, 1984; Waldman et al., 2001). Therefore, in the context of M&As, both at the market-wide level and the management at the individual level have an impact on takeover decisions (Jensen and Meckling, 1976; Roll, 1986; Scharfstein and Stein, 1990; Shleifer and Vishny, 2003; Baker et al., 2004; Rhodes-

Kropf and Viswanathan, 2004; Harford, 2005). Accordingly, this research proposes the interaction between CEO pay disparity and market optimism to analyse the consequences of paying CEOs a wider pay gap when they conduct takeover transactions in different market conditions. Hypotheses H_{4a} , H_{4b} and H_{4c} will be tested respectively for the interaction effects on takeover premium, announcement returns and long-term returns to acquiring firms.¹³

$$\begin{aligned} \text{Premium}(CAR, BHAR) = & \beta_0 + \beta_1 OPT \# RelPay(CPS) + [Control\ Variables] \\ & + [IndustryDummies] + [YearDummies] + \varepsilon \end{aligned}$$

(Equation 4.15)

All independent variables and control variables remain the same as specified in Equation 4.14. Based on prior studies reviewed in Section 2.3 and the mixed perception of different theories on the impact of market optimism and CEO pay disparity on takeover decisions discussed in Chapter 3, a matrix of possible interactions between market optimism and CEO pay disparity has been presented in Section 3.2.3. Table 4.1 presents the possible impacts of the interaction terms.

¹³ See Appendix E for variable definitions and source of information.

Table 4.1 Prediction on the Effect of the Interaction Variables

	Interaction Variables	Takeover Premium	Announcement Returns	Long-term Returns
Panel A: Market Optimism under the Neoclassical Theory				
<i>Panel A1: CEO Pay Disparity under the Efficient Contracting Theory</i>				
<i>Quadrant A</i>	High OPT – Low RelPay (CPS)	no prediction	positive	positive
<i>Quadrant B</i>	Low OPT – High RelPay (CPS)	no prediction	positive	positive
<i>Quadrant C</i>	High OPT – Low RelPay (CPS)	no prediction	negative	negative
<i>Quadrant D</i>	Low OPT – Low RelPay (CPS)	no prediction	negative	negative
<i>Panel A2: CEO Pay Disparity under the Managerial Power Theory</i>				
<i>Quadrant A</i>	High OPT – Low RelPay (CPS)	positive	negative	negative
<i>Quadrant B</i>	Low OPT – High RelPay (CPS)	positive	negative	negative
<i>Quadrant C</i>	High OPT – Low RelPay (CPS)	negative	positive	positive
<i>Quadrant D</i>	Low OPT – Low RelPay (CPS)	negative	negative	negative
Panel B: Market Optimism under the Market Misvaluation Theory				
<i>Panel B1: CEO Pay Disparity under the Efficient Contracting Theory</i>				
<i>Quadrant A</i>	High OPT – Low RelPay (CPS)	no prediction	positive	positive
<i>Quadrant B</i>	Low OPT – High RelPay (CPS)	no prediction	no prediction	positive
<i>Quadrant C</i>	High OPT – Low RelPay (CPS)	no prediction	positive	negative
<i>Quadrant D</i>	Low OPT – Low RelPay (CPS)	no prediction	positive	negative
<i>Panel B2: CEO Pay Disparity under the Managerial Power Theory</i>				
<i>Quadrant A</i>	High OPT – Low RelPay (CPS)	positive	positive	negative
<i>Quadrant B</i>	Low OPT – High RelPay (CPS)	positive	negative	negative
<i>Quadrant C</i>	High OPT – Low RelPay (CPS)	negative	positive	positive
<i>Quadrant D</i>	Low OPT – Low RelPay (CPS)	negative	negative	No prediction

4.6 CHAPTER SUMMARY

This chapter begins by describing the methodology used to classify high and low market optimism, which incorporates the optimism on the stock market and the bond market. The process involves calculating the modified detrended market P/E on the stock market and controlling for the effects of the Spread between Bank Lending to Business Rate and Interbank Overnight Cash Rate. This chapter goes on to propose two proxies for CEO pay disparity, the CEO Relative Pay and the CEO Pay Slice. A model to characterise high and low CEO pay disparity is specified. Subsequently, calculation of takeover premium and other controlling factors to analyse the impact of

market optimism and CEO pay disparity is stated. Having justified the approach to derive the cumulative abnormal returns and buy-and-hold abnormal returns, this chapter moves on to the models to assess the impact of market optimism and CEO pay disparity on announcement returns and long-term returns as well as the interaction effects between market optimism and CEO pay disparity. Next chapter presents the construction and descriptive statistics of the empirical sample.

Chapter 5: **Sample Construction and Descriptive Statistics**

5.0 CHAPTER OVERVIEW

Chapter 5 presents a detailed description of the data selection process and descriptive statistics of the sample. Chapter 5 starts with the data overview in Section 5.1. Market optimism classification is reported in Section 5.2. Section 5.3 describes CEO pay disparity, financial specifics and corporate governance data. Section 5.4 outlines the steps involved in selecting the takeover sample and presents its descriptive statistics. Finally, a summary of Chapter 5 is in Section 5.5.

5.1 DATA OVERVIEW

The empirical analysis in this study is based on three sets of data including financial market data, takeover data, and company finance and corporate governance data. The data collection involved a significant level of manual collection tasks.

Before starting the data analysis, data verification is conducted for all variables. The data screening process is comprised of checking missing observations, data accuracy and data distribution. Missing observations are filled in manually by obtaining information from company websites, annual reports and disclosures. This time-consuming process helps to minimise the level of missing data. Regarding data entry accuracy and authentication, a large proportion of variables are manually checked, especially for the deal characteristics, compensation and corporate governance data.

Data transformation is conducted to reduce the skewness of variables. Data transforming procedures such as natural logarithm and winsorising techniques are popular methods in corporate finance literature to obtain a better linear fit from the OLS regression (Hayward and Hambrick, 1997; Harford, 1999; Rhodes-Kropf et al., 2005; Dong et al., 2006; Masulis et al., 2007; Malmendier and Tate, 2008; Alexandridis et al., 2012; Hirshleifer et al., 2012; Humphery-Jenner and Powell, 2014). Moreover, data transformation is required for interpretation of the mean and median difference test, as this may otherwise be driven by the outliers (Friedlan, 1994). Following the literature, the natural logarithm technique is applied for firm size and deal value (Bugeja et al., 2012; Balafas and Florackis, 2014; Bugeja, Matolcsy and Spiropoulos, 2017). Further, in alignment with previous studies on takeovers and compensation, the winsorising technique is used to eliminate influential outliers. Winsorising replaces the value of the outlier to the nearest non-outlying value. Selection of an appropriate value to winsorise depends on the difference between the outlying value and the previous value in an ordered ranking of the sample. After analysing the sample, variables such as *RelPay*, *CPS*, *IndAdjTobinsQ*, *Premium*, *RelativeSize*, *ROA*, *Leverage*, *ROAGrowth*, *SalesGrowth*, *Capex/Assets* and *CEOOwnership* are winsorised at the 5% level. This technique has been used by prior studies in the M&A literature (Bugeja et al., 2012; Balafas and Florackis, 2014; Bugeja, Matolcsy, Mehdi, et al., 2017; Bugeja, Matolcsy and Spiropoulos, 2017).

5.2 MARKET OPTIMISM IDENTIFICATION

5.2.1 Data Selection

To classify market optimism for the period 2002 to 2015, data needs to be collected five years prior to the sample period. To calculate market optimism, the data required includes market P/E ratios, Bank Lending to Business Rates, Interbank Overnight Cash Rate and market returns. Market P/E ratios and market returns are obtained from Datastream. Bank Lending to Business Rate and Interbank Overnight Cash Rates are available on the RBA website from Table D8 (Bank Lending to Business – Selected Statistics) and Table F1.1 (Interest Rates and Yields – Money Market – Monthly). The quarterly Bank Lending to Business Rates are assigned to be

the monthly rate of three months of that quarter. Appendix C presents a summary of data sources.

Table 5.1 presents summary statistics of the number of takeover deals and the aggregate market variables. As can be seen from the table, there are on average 30.21 deals per year between listed bidders and targets. The average market P/E is 16.32% with the highest value of 22.74% in June 2000 and the lowest value of 9.78% in January 2009. The average market return is 0.35% and the average Spread between Bank Lending to Business Rates and Interbank Overnight Cash Rate is 2.02%. It is noted that the number of takeover bids, market P/E and market returns fluctuate over time with standard deviations of 11.06%, 2.42% and 3.81% respectively. In contrast, the Spread is relatively stable with a standard deviation of 0.62%.

Table 5.1 Aggregate Market: Descriptive Statistics

	Mean	Std. Dev.	1st Quartile	Median	3rd Quartile
<i>DEAL</i> (per year)	30.21	11.06	24	30	33
<i>MARKETP/E</i>	16.32	2.42	14.92	16.71	17.97
<i>RETURN</i>	0.35%	3.81%	-1.83%	1.12%	3.2%
<i>BUSRATE</i>	6.49%	0.94%	5.83%	6.73%	7.05%
<i>CASHRATE</i>	4.45%	1.42%	3.05%	4.75%	5.5%
<i>SPREAD</i>	2.02%	0.62%	1.45%	2.16%	2.6%

This table presents the descriptive statistics of the number of takeover deals and the aggregate market variables in the Australian financial market from 1997 to 2015. *DEAL* is the number of takeover deals in the final sample; *MARKETP/E* is the monthly earnings weighted average of the P/E ratios of the components of All Ordinaries Index; *RETURN* is the monthly return of the All Ordinaries Index, based on the current constituents; *BUSRATE* is the weighted average interest rates on credit outstanding of Bank Lending to Business; *CASHRATE* is the Interbank Overnight Cash Rate; *SPREAD* is the difference between Bank Lending to Business Rate and Interbank Overnight Cash Rate

5.2.2 Market Optimism Identification

Market optimism is identified using the methodology specified in Section 4.1. Figure 5.1 graphically shows the optimism level for the Australian market from 2002 to 2015. The All Ordinaries Index returns are plotted as a reference to market optimism.

The first period of optimism can be seen from late 2004 to the end of 2007 as a reflection of the employment growth, the solid domestic demand and the strong growth

in business investment. Corporate profits grew substantially and capacity was utilised at high rates across a wide range of industries. The main contributions to the optimistic condition are the growth in real household wealth, moderate inflation and a robust increase in the financial market (Australian Government, 2005). One of the major attributes to the economy was the high export prices of the key export commodities that encouraged investments in mining and construction (Australian Government, 2006). The strong expansion in the economy worldwide, especially in China, Japan, East Asia and Latin America, also had a significant effect (Australian Government, 2006). Generally, the relatively long period of optimism was the result of commodity expansion lasting for more than a decade and the favourable terms of trade that lifted the national income (Lim et al., 2009).

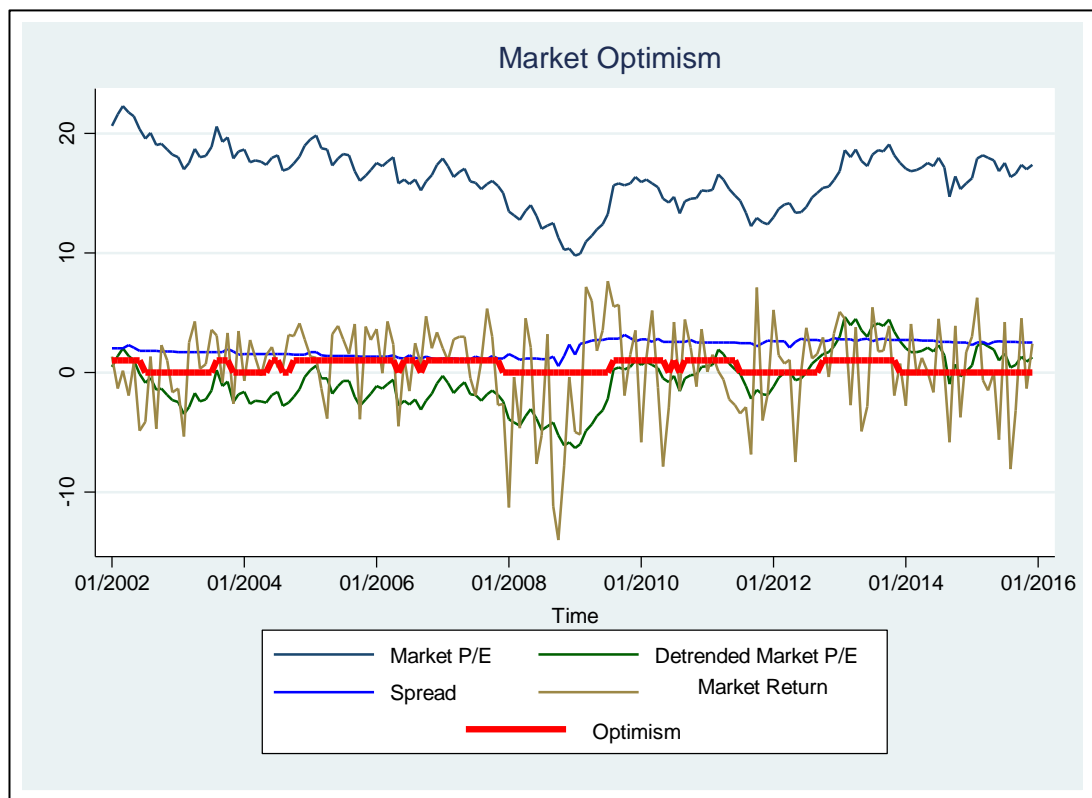


Figure 5.1 Market optimism

However, the above positive trend reversed in 2008 until mid-2009 as the result of the global financial crisis, which started with the collapse of the subprime mortgage market in the US in 2007 (Cohen and Remolona, 2008). Being a small, open economy with a well-integrated financial sector, Australia was not exempt to the financial crisis

(Lim et al., 2009). All the main components of gross domestic product (GDP), i.e., consumption, investment, government expenditure and net exports, decreased while inflation stayed high. Labour market activities fell and the unemployment rate rose. Consumer prices in general and food and energy prices in particular were high, which placed downward pressure on consumption (Lim et al., 2010). The weak real estate market and the bear financial market brought more downward pressure. The weaker economic outlook in Australia's trading partners, which consequently lowered commodity prices, and the decrease in the interest rate gap between Australia and the US considerably depleted the value of the Australian dollar (Lim et al., 2010). With a waning economy worldwide and a weaker Australian dollar, the current account reported the largest deficit in March 2008 (Lim et al., 2009). In general, the Australian economy slowed, but the depletion was much more modest than in most other developed countries (Australian Government, 2011).

Another period of optimism is from late 2009 to mid-2011 during which the Australian economy performed better than most other developed economies and recovered fairly rapidly from the recession after the global financial crisis (Australian Government, 2011). During this period, the emerging Asian economies, and to a lesser extent the economy in Latin America, grew strongly, which led to high prices for Australia's key commodity exports (Australian Government, 2010, 2011). The expansion of the infrastructure projects in China, which is Australia's chief trading partner, placed a high demand for Australian resources (Lim et al., 2010). Commodity prices again lifted Australia's terms of trade to record new high level (Lim et al., 2012). The strong economy, robust fiscal position, healthy banking system, extraordinary resource endowments and close trade ties with Asia allowed Australia to be well placed despite the increasing uncertainty worldwide (Australian Government, 2010). Domestic demand grew significantly faster than anticipated due to strong public spending (Reserve Bank of Australia, 2010). Business investment was at a high level, specifically in the mining sector (RBA, 2010). Employment grew steadily and the unemployment rate dropped back to the earlier range (RBA, 2010). Financial markets turnover increased by 5.4%, reversing the declining trend of the prior years (Australian Financial Markets Association, 2010). This optimistic condition was the result of the economic stimulus package implemented in 2009, which targeted two components of

GDP – investment and consumption (Lim et al., 2010). Another driving force of the favourable economic condition was the rapid monetary easing. Inflation fell dramatically, creating the right environment for the RBA to facilitate an aggressive easing of monetary policy by implementing a steep decline in interest rates (Lim et al., 2010).

Nonetheless, a reduction has been observed from late –2011 to the third quarter of 2012. During this period, the worldwide confidence faded, growth in China slowed and anxieties were upturned about the mining boom. Concerns about the global economy also reduced domestic consumer confidence and growth in the retail sector (Lim et al., 2013). The weakening demand in Australia’s major trading partners, particularly Europe and China, and the weakening domestic demand resulted in the decreasing export and import volumes (Lim et al., 2013). There are two speeds of growth within the country: a high in the relatively less populated north-west and a low in the more populated south-east. This made the national policies difficult to engineer because of the conflicting impact on the winners and losers. Australia’s terms of trade declined. Export prices dropped as a result of a reduction in demand and an escalation in supply of commodities. The weakening demand was mainly because of the continued weakness in Europe and the US, and the lower growth in China. At the same time, supply increased due to the worldwide expansion in the mining industry. Household consumption expenditure remained low as consumers were concerned about the future, while inflation increased and the unemployment rate upsurged (Lim et al., 2013).

A relative optimism period is recorded from late 2012 to 2013 when Australia overcame the challenges of the prior years by some of the most solid economic fundamentals in the advanced world (Australian Government, 2013). Driven by strong growth in China and other emerging market economies, this period saw strong economic outcomes supported by a surge in resource investment and high commodity prices. The major economic transformation from the resources investment boom towards the non-resources sectors was another explanation for the market optimism during this period (Australian Government, 2013). Low interest rates boosted the transition while housing construction responded well to the monetary policy. The

decline in the Australian dollar also strengthened the competitiveness of Australian goods and services. GDP and domestic demand grew with considerable contribution from the net exports. Resource and service exports surged, accounting significantly to the growth in total exports. Mining investment peaked and residential investment grew strongly, facilitated by low interest rates and rapid population growth (Robinson et al., 2015)

The low optimism market from 2014 to 2015 reflected the level of uncertainty. The global economy slowed due to weak economic activity in Europe, China and Japan offsetting the expansion in the US (Robinson et al., 2016). The Chinese economy saw a decreasing investment growth rate, specifically in construction and property, reflecting the policy to switch to a more sustainable economy (Robinson et al., 2016). As a result, the commodity prices and terms of trade dropped severely, which further lessened Australia's income and worsened the earnings of the resources industry (Robinson et al., 2015). The labour market fell, mainly owing to low domestic demand and the transition phase in the economy while real mining investment plunged (Robinson et al., 2015). Weak residential construction and oversupply of housing further dragged down the condition (Robinson et al., 2016). The deterioration in terms of trade lowered real national income and government revenue (Robinson et al., 2016). Moreover, large falls in share prices and substantial rises in volatility of the Australian financial markets significantly impacted superannuation returns, household wealth and investor sentiment (Robinson et al., 2016).

Table 5.2 presents the annual summary of the takeover sample and the distribution of takeover bids according to the monthly high and low market optimism. As shown in Table 5.2, of the total sample of 423 takeover deals, there were 231 (54.61%) announced in high optimism markets and 192 (45.39%) announced in low optimism markets. It can be observed from the table that there are slightly more transactions in high optimism markets than in low optimism markets, which is in line with previous studies in the US market (Bouwman et al., 2009; Petmezas, 2009).

Table 5.2 Summary of Takeover Deals: High Optimism versus Low Optimism

Year	All	High Optimism		Low Optimism	
		No. Deals	%	No. Deals	%
2002	22	17	4.02%	5	1.18%
2003	21	0	0.00%	21	4.96%
2004	24	10	2.36%	14	3.31%
2005	32	26	6.15%	6	1.42%
2006	32	24	5.67%	8	1.89%
2007	48	44	10.40%	4	0.95%
2008	40	21	4.96%	19	4.49%
2009	33	1	0.24%	32	7.57%
2010	39	32	7.57%	7	1.65%
2011	33	28	6.62%	5	1.18%
2012	28	0	0.00%	28	6.62%
2013	20	14	3.31%	6	1.42%
2014	27	14	3.31%	13	3.07%
2015	24	0	0.00%	24	5.67%
Total	423	231	54.61%	192	45.39%

This table shows the sample distribution of 423 takeover deals between bidders and targets listed on the ASX from 2002 to 2015, separated by year and by high and low market optimism. Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure.

5.3 CEO PAY DISPARITY CLASSIFICATION

5.3.1 Data Selection

The compensation data of CEO and other directors is obtained from SIRCA and Connect 4 Boardroom databases. Compensation is assessed under three categories: the short-term or cash payment, consisting of salary, director fees, bonus, superannuation and non-pecuniary benefits; the long-term compensation, including shares, stock options and other long-term payments; and the total payment, which is the combination of the cash payment and the long-term payment. The final payout is excluded from the calculation. Missing data is filled in by manual data collection from company annual reports.

Table 5.3 CEO Disparity Classification Sample: Descriptive Statistics

	Mean	Std. Dev.	1st Quartile	Median	3rd Quartile
Panel A: CEO Pay Disparity – CEO Relative Pay					
RelPayShort	7.4014	6.8853	3.0498	5.5807	9.1495
RelPayLong	43.0607	48.0179	2.5337	6.0803	18.2876
RelPayTotal	8.2049	8.2279	3.0496	5.6965	10.1735
IndMedRelPayShort	5.4866	1.1127	4.6778	5.3131	6.3674
IndMedRelPayLong	13.2589	31.0039	4.0833	6.00	9.0384
IndMedRelPayTotal	5.6995	1.3433	4.6625	5.5430	6.5573
Panel B: CEO Pay Disparity – CEO Pay Slice					
CPSShort	0.5265	0.1829	0.4051	0.5374	0.6646
CPSLong	0.5800	0.3716	0.3620	0.5454	0.7642
CPSTotal	0.5373	0.1918	0.4065	0.5519	0.6859
IndMedCPSShort	0.5417	0.0427	0.5082	0.5398	0.5751
IndMedCPSLong	0.5678	0.1050	0.4960	0.5470	0.6330
IndMedCPSTotal	0.5553	0.0499	0.5144	0.5510	0.5922
Panel C: Financial Specifics					
TotalAssets	168.3193	706.8171	1.9271	7.9607	42.6974
LogBookValue	11.5156	2.3539	9.8663	11.2848	12.9644
IndAdjTobinsQ	0.7920	2.30	-0.2219	0.1693	0.8373
ROA	-0.1674	0.6185	-0.1626	0.0058	0.0673
Leverage	0.1707	0.2455	0	0.0920	0.2708
ROAGrowth	0.1428	5.8807	-0.7811	-0.1714	0.3532
SalesGrowth	6.6134	194.6518	-0.1211	0.0762	0.4027
Capex/Assets	0.0876	0.1236	0.0096	0.0361	0.1143
Panel D: Corporate Governance Characteristics					
BoardSize	6.1241	2.2631	5	6	7
InsiderRatio	0.3060	0.1669	0.1667	0.25	0.40
CEODuality	0.1233				

This table presents the descriptive statistics of 6,869 companies listed on the ASX from 2001 to 2015. CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) over the average pay of other directors on the board is presented in Panel A. CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*) to the total pay of all directors on the board is reported in Panel B. Short-term compensation includes salary, director fees, bonus, superannuation and non-pecuniary benefits. Long-term compensation includes shares and stock options. Total compensation is the sum of the salary, director fees, bonus, superannuation, non-pecuniary benefits, shares and stock options. The financial specifics are in Panel C and corporate governance characteristics are in Panel D. *IndMedRelPay (CPS)* is the median *CEORelPay (CPS)* in the two-digit GICS industry codes. *LogBookValue* is the natural logarithm of total assets. *IndAdjTobinsQ* is market value divided by the book value of assets. *ROA* is earnings before interest, depreciation, and amortisation, divided by total book assets. *Leverage* is total debt divided by total asset. *ROAGrowth* is current ROA divided by ROA in the previous year. *SalesGrowth* is sales in the current year divided by sales in the previous year. *Capex/Assets* is ratio of capital expenditures to total assets. *BoardSize* is the number of directors on the board. *InsiderRatio* is the ratio of the number of executive directors on the board to total directors. *CEODuality* is a dummy variable that takes the value of one if the CEO also acts as the chairman, and take the value of zero otherwise.

Corporate governance data is collected for the year prior to announcement and the year of announcement. This includes board size, insider ratio and CEO duality. Data is obtained from SIRCA database and any missing data is manually collected from company annual reports. Companies with CEOs appointed after announcement or companies with a change in CEO in the year of and the year before announcement are not included in the sample. Appendix D presents the definition of the variables and the sources of data.

5.3.2 CEO Pay Disparity Classification Sample: Descriptive Statistics

Panel A Table 5.3 illustrates the descriptive statistics of CEO relative pay separately by short-term or cash payment, long-term payment and total compensation. On average, CEOs earn a total compensation 8.21 times higher than the average earnings of other directors on the board, of which the ratio for the short-term component is 7.4 and for the long-term component is 43.06. The industry median relative pay for the short-term component, long-term component and total compensation are recorded lower at 5.48, 13.26 and 5.70 times respectively. As can be seen in Panel B Table 5.3, CEOs take 53.73% in total payout of the total compensation paid to the board of directors. The short-term and long-term pay slice are recorded at similar level of 52.65% and 58%. The industry median figures are comparable at 54.17%, 56.78% and 55.53% respectively for the three compensation categories. Panel C Table 5.3 reports firm financial statistics. The book value of an average sample firm is about \$168 million. The average industry adjusted Tobin's Q is 0.79%. Return on assets (*ROA*) is recorded at -0.16% on average while 17% of assets are financed by debt. The average growth in *ROA*, sales and internal investment is 0.14%, 66% and 8.7% respectively.

Corporate governance characteristics are presented in Table 5.3 Panel D. The mean (median) Australian board size is 6.12 (6), which is smaller than the board size of 10 to 12 in the US (Yermack, 1996; Coles et al., 2008) and 10 in the UK (Coakley and Iliopoulou, 2006). These statistics are consistent with those obtained by Kiel and Nicholson (2003) and Bugeja et al. (2012). Kiel and Nicholson (2003) report an average board size of 6.6 for a sample of listed companies in 1996. Bugeja et al. (2012)

observe a slightly larger board size of 7 for a sample of listed firms from 2000 to 2007. The proportion of executive directors on the board is 30.06%, with the majority being non-executive directors, which is similar to previous studies on the Australian market, ranging from 27% (Stapledon and Lawrence, 1997), to 28.45% (Bugeja et al., 2012), 31% (Kiel and Nicholson, 2003) and 34.5% (Matolcsy et al., 2004). The insider ratio reported in this study is similar to that in the US (Grinstein and Hribar (2004)), but less than that in the UK market (Coakley and Iliopoulou, 2006). Around 12% of CEOs are also the chairman of the board. This is less than the figure of 23% reported by Kiel and Nicholson (2003), but higher than the figure of 5% reported by Chan and Emanuel (2011).

5.3.3 CEO Pay Disparity Classification

Table 5.4 presents the fixed effect panel regression result from applying the method of classifying high and low CEO pay disparity in Section 4.2.

It can be seen from Table 5.4 that all measures of CEO pay disparity variables are positively and significantly associated with their corresponding industry median pay disparity variables across six models. This positive association has also been found by Bebchuk et al. (2011). The coefficients of *LogBookValue*, *IndMedRelPay(CPS)*, *ROA*, *Leverage* and *ROAGrowth* are positive and significant in two to four models, indicating that companies reward CEOs for the management complexity and performance. The complexity to operate large size corporations is associated with high growth potential and a higher level of risks, and therefore requires skilled managers with an equivalent higher demand for pay. This increasing effect is aligned with prior studies on pay disparity in the US (Lee et al., 2008; Bebchuk et al., 2011) and on executive compensation in Australia (Fleming and Stellios, 2002; Chalmers et al., 2006; Bugeja et al., 2012).

Table 5.4 CEO Pay Disparity Regression

	(1)	(2)	(3)	(4)	(5)	(6)
	RelPayShort	RelPayLong	RelPayTotal	CPSShort	CPSLong	CPSTotal
IndMedRelPayShort	0.5269*** (4.72)					
IndMedRelPayLong		0.1058*** (2.59)				
IndMedRelPayTotal			0.4714*** (4.14)			
IndMedCPSShort				0.3001*** (5.59)		
IndMedCPSLong					0.4204*** (3.00)	
IndMedCPSTotal						0.2960*** (5.41)
LogBookValue	0.1808* (1.79)	-3.9052 (-0.40)	0.2098* (1.74)	0.0041 (1.55)	-0.0148 (-0.65)	0.0037 (1.34)
IndAdjTobinsQ	0.0739* (1.89)	0.6576 (0.19)	0.0854* (1.83)	0.0017* (1.65)	0.0151* (-1.87)	0.0007 (0.65)
ROA	0.3571** (2.32)	3.4722 (0.28)	0.4781*** (2.61)	0.0050 (1.27)	0.0010 (0.03)	0.0068 (1.61)
Leverage	0.6543* (1.66)	18.0510 (1.56)	1.0409** (2.21)	-0.0055 (-0.54)	-0.0438 (-0.36)	0.0002 (0.02)
ROAGrowth	0.0361*** (3.20)	0.8366 (0.95)	0.0404*** (3.01)	0.0006** (2.14)	-0.0014 (-0.68)	0.0007** (2.29)
SalesGrowth	0.0001 (0.26)	-0.0033 (-0.35)	-0.0001 (-0.21)	-0.0000 (-0.15)	-0.0000 (-0.10)	-0.0000 (-0.73)
Capex/Assets	-0.5461 (-0.74)	-15.9488 (-0.27)	-0.1480 (-0.17)	-0.0193 (-1.02)	0.0391 (0.28)	-0.0028 (-0.14)
BoardSize	0.1265** (2.39)	-6.0359 (-1.41)	0.0986 (1.56)	-0.0480*** (-3.50)	-0.0271*** (-2.81)	-0.0480*** (-3.29)
InsiderRatio	-15.8571*** (-2.51)	-17.4396* (-1.93)	-17.2948*** (-2.96)	-0.5707*** (-5.05)	-0.8998*** (-6.39)	-0.5803*** (-5.23)
CEODuality	1.0976*** (3.60)	-7.3047 (-0.28)	1.1395*** (3.14)	0.0177** (2.25)	-0.0200 (-0.33)	0.0135 (1.61)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
_cons	7.7513*** (5.93)	18.9490 (1.28)	8.4827*** (5.53)	0.7879*** (18.66)	1.0827*** (2.90)	0.8000*** (18.10)
<i>N</i>	6869	1138	6869	6869	1138	6869
<i>R</i> ²	0.1199	0.0515	0.1098	0.2774	0.1096	0.2630

This table shows the results of the fixed effect panel regressions of CEO pay disparity on industry median pay disparity, financial specifics and corporate governance. The sample consists of 6,869 companies listed on the ASX from 2001 to 2015. Column (1), (2) and (3) present the regressions against high and low CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*). Column (4), (5) and (6) present the regressions against CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). CEO relative pay is the ratio of CEO pay over the average pay of other directors on the board. CEO pay slice is the ratio of CEO pay over the total pay of all directors on the board. Control variables are defined in Appendix D *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

For variables that indicate the level of managerial power, *BoardSize* has a positive and significant correlation with *RelPayShort*, suggesting that the larger the board, the higher the CEO short-term remuneration in comparison with that of other directors. In contrast, *BoardSize* is negatively related to *CPSShort*, *CPSLong* and *CPSTotal*, indicating that larger board size reduces the portion of CEO pay over the total pay of the management team. A possible explanation may be that the pay package is determined based on the difficulties associated with monitoring a company that requires a larger board (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). Alternatively, a larger board size may be a bureaucratic system, and less efficient in their overseeing engagements to top managers. Thus a larger board size could result in the top manager imposing their power on the board and influencing the pay contracts (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990).

The coefficient of *InsiderRatio* is negative and significant to CEO pay disparity. This indicates that inside directors may function well in their daily tasks, which subsequently increases management efficiency and lowers the rent-extracting potential by CEOs (Mangel and Singh, 1993; Main et al., 1995; Borokhovich et al., 1996). The correlation between *CEODuality* and CEO pay disparity is positive and significant in three models, supporting the supposition that CEOs who are also the chairman may have more influence on the board to capture the pay process (Adams et al., 2005; Wade et al., 2006) or they may be awarded for their higher responsibility (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004).

The classification of high and low CEO pay disparity is determined by comparing the actual pay disparity with the expected value from the OLS regression (Equation 4.6). Table 5.5 shows the number and proportion of takeover deals announced by CEOs with high and low pay disparity for the period 2002–2015. It is clear from Table 5.5 that the number of takeover deals undertaken by CEOs with high relative pay is slightly lower than the number of deals conducted by CEOs with low relative pay.

Table 5.5 Summary of Takeover Deals: High CEO Pay Disparity versus Low CEO Pay Disparity

Year	Obs	High RelPayTotal		Low RelPayTotal		High CPSTotal		Low CPSTotal	
		No. Deals	%	No. Deals	%	No. Deals	Percentage	No. Deals	%
2002	22	11	2.60%	11	2.60%	15	3.55%	7	1.65%
2003	21	11	2.60%	10	2.36%	13	3.07%	8	1.89%
2004	24	16	3.78%	8	1.89%	16	3.78%	8	1.89%
2005	32	16	3.78%	16	3.78%	17	4.02%	15	3.55%
2006	32	13	3.07%	19	4.49%	12	2.84%	20	4.73%
2007	48	25	5.91%	23	5.44%	24	5.67%	24	5.67%
2008	40	19	4.49%	21	4.96%	22	5.20%	18	4.26%
2009	33	14	3.31%	19	4.49%	15	3.55%	18	4.26%
2010	39	19	4.49%	20	4.73%	19	4.49%	20	4.73%
2011	33	15	3.55%	18	4.26%	18	4.26%	15	3.55%
2012	28	10	2.36%	18	4.26%	11	2.60%	17	4.02%
2013	20	7	1.65%	13	3.07%	7	1.65%	13	3.07%
2014	27	15	3.55%	12	2.84%	11	2.60%	16	3.78%
2015	24	5	1.18%	19	4.49%	7	1.65%	17	4.02%
Total	423	196	46.34%	227	53.66%	207	48.94%	216	51.06%

This table shows the number and proportion of takeover deals by year and by high and low CEO pay disparity. The sample includes 423 takeover deals between bidders and targets listed on the ASX from 2002 to 2015. CEO pay disparity is measured by *RelPayTotal* and *CPSTotal*. *RelPayTotal* is the ratio of CEO total pay over the average pay of other directors on the board. *CPSTotal* is the ratio of CEO total pay over the sum of total pay of all directors on the board. Total compensation includes salary, director fees, bonus, superannuation, non-pecuniary benefits, shares and stock options. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity.

5.4 TAKEOVER SAMPLE

5.4.1 Sample Construction

Takeover data is collected over the period from 2002 to 2015, giving a total of 168 monthly observations. The initial sample of all takeovers is formed from three separate sources:

- Connect 4 Takeovers & Mergers: a commercial database that reports information on takeover offers for all Australian targets from 1999 onwards.
- Zephyr: a database that contains information on M&As, initial public offering, private equity and venture capital deals and rumours.

- **DatAnalysis:** a database provides a summary list of Australian takeovers from 1997.

To minimise the number of missing observations, data from the three databases are assembled and matched. At the first step, all deals listed on each source are included to the population. The main issue within the initial list is the duplication of reports and an earlier offer of a transaction has been recorded as another deal. At the second step, all bids between a specific bidder and target are checked to exclude any multiple records. Annual reports, company announcements and other information provided by Connect 4 Takeovers & Mergers and DatAnalysis databases are used to check the accuracy of the takeover announcement dates. The checking process is being taken both automatically using data management software and manually on a case-by-case basis when needed.

A number of sources are used to collect the deal characteristics required to estimate the regression models. Connect 4 Takeovers & Mergers database is the primary source of information from which deal value, consideration form, method of payment, revised offer details, offer descriptions, the presence of competing bidders, recommendations of directors, company industry information and takeover outcomes are provided. Zephyr database and DatAnalysis database are used to verify information. Company annual reports, and takeover and scheme documents lodged with the ASX are manually checked to fill in missing observations.

All necessary financial information of bidders and targets is obtained from DatAnalysis, SIRCA and Datastream. These items include total assets, market capitalisation, book-to-market ratio, ROA, leverage, sales, daily share price and monthly share price return index.

Incorporating information from different sources, a takeover deal is required to satisfy the following criteria:

- Both the targets and bidders are publicly traded on the ASX. Publicly traded companies are selected as financial reports, corporate governance practice

and other information on these firms are disclosed in company annual reports, announcements and disclosures. Moreover, this criteria is required to calculate bid premium as well as bidder performance using share returns.

- The offer prices are available on Connect 4 Takeovers & Mergers, Zephyr or company statements. Where stock payment is involved, the offer price is calculated by using the last trading day before the deal announcement.
- Targets need to have daily price data available on SIRCA or DatAnalysis databases at the time of announcement and two months before the announcement.
- Bidders are not delisted within two years after announcement.
- Bidders have daily price data, valid monthly return index, monthly book-to-market ratios, and monthly market capitalisation data on SIRCA, DatAnalysis and Datastream databases during the year prior to the year of announcement to two years after the month of announcement.
- The bidder's CEO must be appointed before announcement and remain in position in the year before announcement and the year of announcement.
- Bidder's CEO compensation and corporate governance data is available on Connect 4 Boardroom or SIRCA databases or in the company annual report.

Table 5.6 presents a summary of takeover deals provided by Connect 4 Takeovers & Mergers, DatAnalysis and Zephyr and the final sample. The original sample consists of 858 observations, including all takeover deals from 2002 to 2015. From this base, 223 observations are excluded for unlisted bidders, 13 observations when CEOs of acquiring firms are appointed after announcement, 28 observations when there are changes in bidders' CEOs in the year of announcement and one year prior to announcement. Acquiring firms that are delisted within two years after announcement (39 observations) are also excluded from the original sample. Takeover deals with no information on deal characteristics such as deal value and offer price are also eliminated (23 observations). Takeover deals with missing information on share price and financial data for either target firms or acquiring firms are also excluded (54 observations). There are also 55 observations ignored due to the unavailability of acquiring firms' data on CEO compensation and corporate governance. The final sample contains 423 observations.

Table 5.6 Sample Construction

Takeover deals announced from 2002 to 2015 for ASX listed targets on Connect 4 Takeovers & Mergers, DatAnalysis and Zephyr	858
Exclusions:	
Bidders are not publicly listed on the ASX	223
Bidders with CEOs appointed after announcement	13
Bidders with change in CEOs in year t and t-1	28
Bidders are delisted within two years after announcement	39
Takeovers with deal characteristics unavailable	23
Takeovers with target share price and financial data unavailable	31
Takeovers with bidder share price and financial data unavailable	23
Takeovers with bidder corporate governance data unavailable	55 (435)
Final sample	423

Figure 5.2 graphically shows the yearly distribution of the original sample of all takeover deals (858) and the final sample (423). It is evident that the final sample relatively follows the same pattern as the original sample.

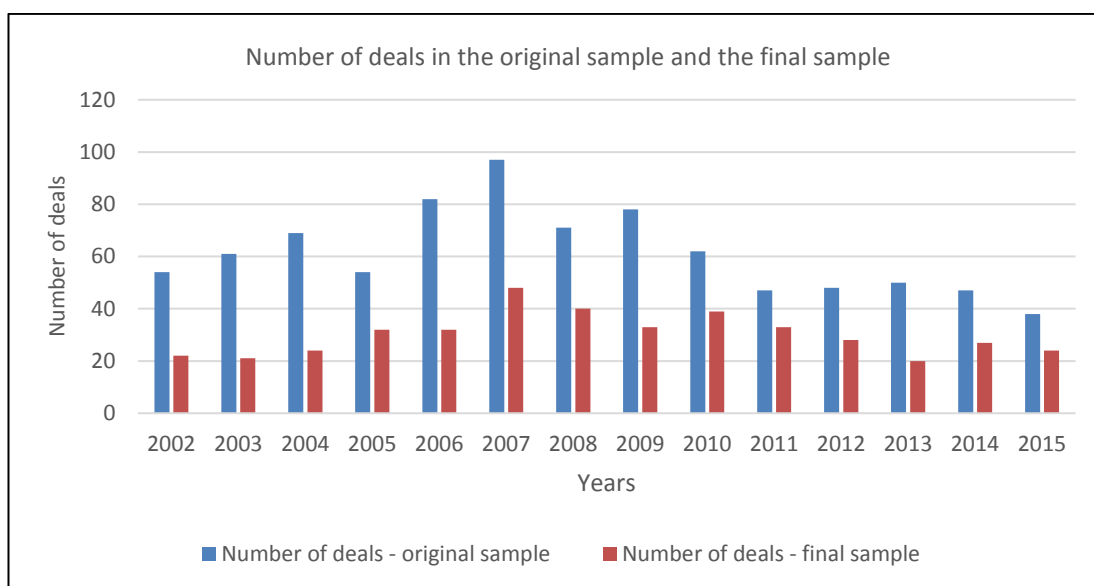


Figure 5.2 Number of takeover deals in the original sample and the final sample
Sample Period

The sample covers the calendar years 2002 to 2015. Regarding the starting time, takeover data is provided on Connect 4 Takeovers & Mergers and DatAnalysis from

1997 and on Zephyr from 1999. However, Section 300A of the Corporations Law, introduced in the Company Law Review Act (1998), requires listed companies to disclose directors and executive officers' compensation in the annual report. Although it has been legislative since 1998, the availability of information, both from annual reports and the databases is very limited, especially in the early years of implementing the requirement. SIRCA and Connect 4 only provide data from the years 2001 and 2004 respectively, with a large number of missing observations in the earlier years. Company annual reports, announcements, websites and public disclosures are surveyed to obtain the data on remuneration and corporate governance before 2000, but the result is discouraging. Very limited and basic information on executive and director remuneration is provided in all the available sources. Therefore, the takeover sample starts from 2002 and compensation data is collected from 2001. However, for many observations, the databases only have the name of directors but no information on compensation is recorded. For these cases, CEO compensation and corporate governance data is manually obtained from company annual reports. Regarding the cut-off time, the last year in our sample is 2015 in order to have data to analyse for the two years post-announcement returns of the acquiring firms.

5.4.2 Takeover Sample: Descriptive Statistics

Panel A Table 5.7 presents summary statistics of CEO disparity in the three compensation categories: short-term payment, long-term payment and total compensation. On average, a typical CEO is paid 9.85 times higher in total compensation than the other directors. The ratio for the cash component and the long-term component is 8.48 and 62.18 respectively. The relative pay ratios are higher for CEOs of bidding firms than that of CEOs in the general sample reported in Table 5.3. Regarding CEO pay slice, CEOs receive 51.38% of the short-term pay, 58.02% of the long-term pay and 53.03% of the total pay of the remuneration paid to the board of directors, which are in the same range as the general firms reported in Table 5.3.

Panel B of Table 5.7 reports the deal characteristic statistics. The average size of the deals is \$425.49 million. In the sample, there is evidence that Australian acquiring firms tend to announce takeover deals to targets in the related industry. The majority

of M&A transactions are conducted by bidders and targets that come from the same industry. In only 22.22% of the total deals the bidder's industry sector is different from the target's. The majority of takeover deals are friendly, with only 27.89% being hostile. Half of the deals (49.64%) are financed by cash. This is consistent with previous Australian research. da Silva Rosa et al. (2000) observe that cash-financed takeovers account for 61.25% of the total bids in a sample of takeover bids from 1988 to 1996. Similarly, Henry (2004) documents 55% of cash-based finance for the period 1991 to 2000. Duong and Izan (2012) report 70% to be cash-only deals over the period from 1980 to 2004. Bugeja et al. (2016) find 61% of deals financed by cash in the takeover sample from 2000 to 2011. Cash-financing seems to be lower in the present sample but it still holds a large proportion of the total deals. Of the total deals, 19.62% have a competing bidder and 21.51% have an offer price that is subsequently revised.

Panel C Table 5.7 presents firm financial statistics. The average market value of bidders is \$1,838.73 million. The standard deviation is \$3,053.78 million for bidders suggesting a large variation in firm size in the sample. The mean and median relative size is 75.07% and 31.26% respectively. Acquiring firms have an average ROA of 1.7%, while targets report a negative return of -5.3%. It is worth noting that 17.74% of bidder capital is structured in debt.

Corporate governance characteristics are recorded in Table 5.7, Panel D. An average Australian acquiring firm has about seven board members, which is larger than the board size of the firms in the general sample reported in Table 5.3. About 28.12% of the board are insiders, with outsiders accounting for the vast majority of the management team. There are 8.03% of CEOs who are the chairman of the board. In addition, CEOs of bidding firms are, on average, in the position for 6.45 years. Bugeja et al. (2012) record similar figures with the average CEO tenure of 7.01 years. On average, CEOs of bidding firms in the sample hold 5.76% of the company shares. Bugeja et al. (2012) show a lower ratio of 4.48% CEO share ownership. It is evident that CEO shareholding in Australia is much lower than that of their UK counterparts, reported at 15% by Lasfer (2006), but higher than the US peers at 2.61% (Dah and Frye (2017).

Table 5.7 Takeovers Sample: Descriptive Statistics

	Mean	Std. Dev.	1st Quartile	Median	3rd Quartile
Panel A: CEO Pay Disparity					
RelPayShort	8.4821	8.0961	3.2420	5.9736	5.9736
RelPayLong	62.1815	81.0997	3.0275	9.0384	21.0479
RelPayTotal	9.8562	10.1300	3.2112	6.2012	12.7896
CPSShort	0.5138	0.2111	0.3678	0.5110	0.6663
CPSLong	0.5802	0.2996	0.3750	0.5596	0.7787
CPSTotal	0.5307	0.2242	0.3736	0.5220	0.6985
Panel B: Deal Characteristics					
DealValue (\$ million)	425.4967	726.9586	27.9838	86.5433	424.8528
Diversification	0.2222				
HostileBid	0.2789				
CashPayment	0.4964				
CompetingBid	0.1962				
RevisedBid	0.2151				
SuccessfulDeal	0.6903				
Panel C: Bidder and Target Financial Characteristics					
BidderMktCap	1,838.726	3053.781	93.68	419.425	1,924.38
RelativeSize	0.7507	2.1214	0.1104	0.3126	0.7279
TargetROA	-0.0553	0.5462	-0.1035	0.0193	0.0672
BidderROA	0.0177	0.1307	-0.0170	0.0554	0.0861
BidderLEV	0.1774	0.0836	0.1156	0.1567	0.2125
Panel D: Bidder Corporate Governance					
BoardSize	7.0496	2.6963	5	7	8
InsiderRatio	0.2812	0.1537	0.1667	0.25	0.4
CEODuality	0.0803				
CEOTenure (Years)	6.4553	5.8406	2.3013	4.7424	8.2657
CEOOwnership	0.0576	0.1635	0.0003	0.0039	0.0351

This table presents the descriptive statistics of 423 takeover deals between bidders and targets listed on the ASX from 2002 to 2015. CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*) are presented in Panel A. CEO relative pay is the ratio of CEO pay over the average pay of other directors on the board. CEO pay slice is the ratio of CEO pay over the total pay of all directors on the board. Deal characteristics are reported in Panel B. Bidder and target financial specifics are in Panel C. Bidder corporate governance is in Panel D. Other variables are defined in Appendix D.

Table 5.8 further classifies takeover deals according to the industry of the bidder and the target firms, based on the two-digit codes of Standards & Poors Global

Industry Classification Standard (GICS).¹⁴ As can be seen in Table 5.8, the percentage of acquiring firms coming from the Material sector is the highest with 145 deals, equivalent to 34.27% of the final sample. A similar pattern is observed for target firms, with 146 deals accounting for 34.52% of the sample.

Table 5.8 Industry Distribution of Bidders and Targets

GICS Industry Sector	GICS Industry Code	Bidder		Target	
		No. Deals	Percentage	No. Deals	Percentage
Energy	10	56	13.24%	57	13.48%
Materials	15	145	34.28%	146	34.52%
Industrials	20	32	7.57%	34	8.04%
Consumer Discretionary	25	48	11.35%	45	10.64%
Consumer Staples	30	24	5.67%	19	4.49%
Healthcare	35	16	3.78%	18	4.26%
Financials	40	68	16.08%	60	14.18%
Information Technology Telecommunication Services	45	13	3.07%	21	4.96%
Utilities	50	15	3.55%	14	3.31%
	55	6	1.42%	9	2.13%
Total	-	423	100%	423	100%

This table presents the distribution of 423 takeover deals between bidders and targets listed on the ASX from 2002 to 2015.

Apart from the Financials industry sector, which has a considerable proportion of acquiring firms (16.08%), the remaining number of transactions are quite evenly distributed across Energy (13.24%), Consumer Discretionary (11.35%), Industrials (7.57%) and Consumer Staples (5.67%). The lowest contributions are from Utilities (1.42%), Information Technology (3.07%), Telecommunications Services (3.55%) and Healthcare (3.78%)

For target firms, 14.18% of the deals are in Financials, 13.48% in Energy and 10.64% in Consumer Discretionary. There are much less M&A deals in Utilities (2.13%) and Telecommunications Services (3.31%).

¹⁴ The GICS is used to categorise every bidder and target industry. GICS industry classification has been in use since September 2002. For missing information, the annual reports are checked to assign each firms to the GICS code by using the ASX's remapping guidance.

5.5 CHAPTER SUMMARY

This chapter reports the result of identifying market optimism and maps the sample distribution into the corresponding high and low optimism months. Subsequently, measurements of the CEO pay disparity dependent variables and independent variables used in regression models are documented with a discussion on the determinants of CEO pay disparity. This chapter moves on by outlining the selection criteria of the takeover sample, justifying the sample period and describing the data obtaining process. Data is obtained from relevant databases, company annual reports and company disclosures. Descriptive statistics of the deal characteristics and financial data of the acquirers and targets are reported before an industry sector breakdown of the final usable sample is provided. In the next chapter, the empirical results will be presented.

Chapter 6: Empirical Results

6.0 CHAPTER OVERVIEW

Chapter 6 reports the empirical results of this study. The univariate and multivariate analyses are conducted to test the hypotheses specified in Section 3.2. The empirical results are presented in five sections. Section 6.1 summarises the univariate analysis of takeover premium separated by high and low market optimism and by high and low CEO pay disparity in the acquiring firms, followed by the multivariate analysis of the impact of market optimism and CEO pay disparity on takeover premium. Chapter 6 continues with the univariate analysis and multivariate analysis of the influence of market optimism and CEO pay disparity on announcement returns in Section 6.2, and on long-term returns in Section 6.3. The interaction effects of market optimism and CEO pay disparity are analysed in Section 6.4. Section 6.5 reports the robustness tests. Section 6.6 summarises the chapter.

6.1 TAKEOVER PREMIUM ANALYSIS

The purpose of this section is to test *Hypothesis H_{1a}* on the correlation between market optimism and takeover premium, and *Hypothesis H_{1b}* on the correlation between CEO pay disparity and takeover premium. The univariate analysis of takeover premiums from deals conducted in high and low market optimism and by CEOs who earn high and low pay disparity are presented first. The multivariate analysis is then conducted to examine the impact of market optimism and CEO pay disparity on takeover premium.

6.1.1 Univariate Analysis

This section presents the univariate analysis of takeover premium divided by different market conditions, and by CEOs of acquiring firms with different levels of pay disparity to other directors. It reports the difference in takeover premium if the deals are announced in high and low market optimism, and if the deals are initiated by CEOs with high and low pay disparity. Bid premium is calculated as the percentage of the difference between the offer price and target share price 60 days prior to announcement.

Table 6.1 details the descriptive statistics of takeover premium. It can be seen in Table 6.1 that mean and median difference of the takeover premium of the sample are approximately 28.21% and 24.67% respectively. This observation is consistent with the previous Australian research. Bugeja and Loyeung (2017) report an average premium of approximately 30% and the median of 16% for takeover deals announced over the period 1997–2004. Duong and Izan (2012) observe that in a sample of takeovers from 1980–2004, the mean (median) takeover premium is approximately 26% (19%) relative to two months prior to announcement.

As evidenced in Panel A of Table 6.1, takeover premiums are different among deals conducted in high and low optimism months. On average, deals announced in high market optimism offer a premium of 31.25% compared to 24.56% for deals in low optimism periods. Similarly, the median premium for the high optimism months is 27.15%, which is about 30% higher than that in the low optimism periods. The mean difference and the median difference are respectively significant at the 10% level and 5% level. This observation initially supports *Hypothesis H_{1a}* that there is an association, which is likely to be positive, between market optimism and takeover premium.

Table 6.1 Takeover Premium: Univariate Evidence

	Obs	Mean(%)	Median(%)	Mean Difference		Median Difference	
				t-stat	p-value	Z-stat	p-value
Panel A: High Optimism vs Low Optimism							
High Optimism	231	31.25	27.15	1.8093	0.0711	2.190	0.0286
Low Optimism	192	24.56	19.80				
Total	423	28.21	24.67				
Panel B: High RelPay vs Low RelPay (CEO compensation/Average compensation of the board)							
Short-term Pay							
High	178	33.17	27.24	2.2955	0.0222	2.472	0.0134
Low	245	24.62	19.61				
Total	423	28.21	24.67				
Long-term Pay							
High	104	25.74	24.63	-2.0348	0.0430	-1.557	0.1196
Low	142	35.33	28.91				
Total	246	31.27	25.36				
Total Pay							
High	196	32.50	27.24	2.1658	0.0309	2.549	0.0108
Low	227	24.51	18.75				
Total	423	28.21	24.67				
Panel C: High CPS vs low CPS (CEO compensation/Total compensation of the board)							
Short-term Pay							
High	194	32.40	27.24	2.0948	0.0368	2.352	0.0187
Low	229	24.66	20				
Total	423	28.21	24.67				
Long-term Pay							
High	129	30.80	25.64	-0.2105	0.8335	0.086	0.9314
Low	117	31.79	25.09				
Total	246	31.27	25.36				
Total Pay							
High	207	31.46	26.16	1.7260	0.0851	2.206	0.0274
Low	216	25.10	18.10				
Total	423	28.21	24.67				

This table shows the summary statistics of takeover premium. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed bidders and targets on the ASX. *Premium* is the ratio of the offer price, minus the target share price 60 days prior to the announcement, divided by pre-takeover share price, expressed in percentage. Panel A presents the mean and median premium of takeovers announced in high and low *Optimism* months. Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure. Panel B and C present the mean and median value of takeover premiums announced by CEOs with high and low pay disparity, measured by *RelPay* and *CPS*, in short-term compensation, long-term compensation and total compensation. *RelPay* is the ratio of CEO pay over the average pay of other directors on the board. *CPS* is the ratio of CEO pay over the total pay of all directors on the board. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity. Bold figures indicate the significant difference at the level of 10% or better.

Table 6.1 further presents the descriptive statistics of the sub-analysis partitioned by high and low CEO pay disparity, as ranked by the method specified in Section 4.2. The difference in takeover premium paid by CEOs who earn high and low CEO relative pay to the average compensation of the board is in Panel B. It is noted from Panel B that the average takeover premium of deals conducted by CEOs with high relative short-term pay (total pay) is 33.17% (32.50%) while a lower average premium of 24.62% (24.51%) is recorded for deals initiated by CEOs with low relative short-term (total) compensation. The median values of takeover premiums for deals announced by CEOs with high relative short-term and total compensation are both 27.24% whereas those figures for takeover deals conducted by their counterparts is 19.61% (18.75%). The mean and the median difference tests are both statistically significant at the 5% level. In the long-term pay category, the sample size reduces to 246 observations because around 40% of bidders do not include a deferred component in their executive pay package. In this sub-sample, the average takeover premium increases to 31.27%, which is 10% higher than the whole sample. Interestingly, CEOs with high relative long-term compensation offer lower takeover premium (25.74%) than CEOs with low relative long-term compensation (35.33%). The mean difference is statistically significant at the 5% level. The median figures follow the same pattern at 24.63% and 28.91%, respectively. The long-term compensation, which consists of shares and options, has been considered as a tool in reducing the agency cost and better aligning CEO interests with shareholder wealth (Shleifer and Vishny, 1988; Datta et al., 2001). Consequently, CEOs with high relative long-term pay would be less likely to overpay for targets than their counterparts earning low relative long-term pay.

In Panel C, when CEOs of acquiring firms are grouped by high and low pay slice, CEOs with high pay slice in short-term (total) compensation offer an average takeover premium of 32.40% (31.46%), which is about 30% higher than the premium offered by their counterparts. The median premium for transactions initiated by CEOs with high pay slice in the short-term (total) category is 27.24% (26.16%) and by CEOs with low pay slice in the respective category is 20% (18.10%). The mean and median differences are significant at 10% or better. In contrast, in the long-term component, there is not enough evidence of the premium difference between CEOs who receive a larger or a smaller portion of the payment to the management team.

Overall, the univariate analysis provides direct evidence that acquiring firms pay higher premiums when conducting takeover transactions in high market optimism. The analysis further reveals that CEOs who receive high pay disparity in the short-term components and in total pay offer higher premiums than CEOs with low pay disparity in the same compensation categories. The results presented in this section give initial support for *Hypothesis H_{1a}* that there is an association, which is likely to be positive, between market optimism and takeover premium; and for *Hypothesis H_{1b}* that CEO pay disparity is correlated to takeover premium, with the sign of the correlation is probably different across different pay categories.

6.1.2 Multivariate Analysis

The univariate analysis in Section 6.1.1 finds evidence of the difference in bid premium of takeover deals initiated in high and low market optimism and offered by CEOs with high and low pay disparity. This section will further examine the impact of market optimism and CEO pay disparity on takeover premium when other control variables are taken into consideration.

Table 6.3 reports different regression models to analyse the determinants of takeover premium by applying Equation 4.7. Column (1) performs the test of bid premium against market optimism (*OPT*). *OPT* is a dummy variable that takes the value of one if the takeover deal is announced in high market optimism as identified in Section 4.1, and zero otherwise. Columns (2), (3) and (4) respectively test the association between takeover premium and high and low CEO relative pay in short-term compensation (*RelPayShort*), long-term compensation (*RelPayLong*), and total compensation (*RelPayTotal*). Columns (5), (6), and (7) examine the relationship between takeover premium and high and low CEO pay slice in the above-mentioned pay categories (*CPSShort*, *CPSLong*, *CPSTotal*). CEO pay disparity variables are dummy variables derived from the residual of Equation 4.7 and are equal to one with a positive residual and zero otherwise. Target and bidder financial specifics, deal characteristics and bidder corporate governance are included in all models. The Pearson correlation matrix of variables used to analyse takeover premium is presented in Table 6.2.

Table 6.2 Correlation Matrix of Takeover Premium Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
Premium	(1)	1																	
OPT	(2)	.10**	1																
RelPayTotal	(3)	.11**	.07	1															
CPSTotal	(4)	.08*	.05	.82***	1														
RelativeSize	(5)	-.17***	-.02	-.12**	-.10**	1													
TargetROA	(6)	-.02	.01	-.01	-.01	-.01	1												
BidderROA	(7)	.06	.08	.02	.04	-.24***	.23***	1											
BidderLEV	(8)	-.02	.06	.06	.08	-.09*	.14***	.24***	1										
Diversification	(9)	-.07	-.03	-.04	-.03	-.07	-.05	-.02	.04	1									
HostileBid	(10)	-.06	-.07	.05	.08	.06	-.03	0	-.05	.08*	1								
CashPayment	(11)	.07	.07	.07	.09*	-.39***	.18***	.26***	.11**	.17***	.05	1							
CompetingBid	(12)	-.01	.06	-.01	.02	.03	.07	.10**	0	-.11**	.15***	.03	1						
RevisedBid	(13)	.03	.02	.02	.03	.02	-.03	.01	.10**	.08	.33***	.07	.16***	1					
BoardSize	(14)	-.01	.03	.12**	.14***	-.31***	.18***	.26***	.17***	-.02	-.02	.28***	.10*	.01	1				
InsiderRatio	(15)	-.05	-.01	-.27***	-.30***	.10**	-.09*	-.13***	0	.04	.08*	-.07	-.04	.09*	-.25***	1			
CEODuality	(16)	-.01	-.04	-.01	.04	-.02	-.11**	-.09*	-.01	.07	.11**	.05	.01	.03	-.09*	.07	1		
CEOTenure	(17)	.12**	.04	.04	.06	-.23***	.02	.20***	.07	.08	-.03	.17***	-.07	.01	.05	-.05	.02	1	
CEOOwnership	(18)	.03	.05	-.13***	-.05	.03	-.09*	.06	.03	.09*	.10**	.04	-.03	.06	-.15***	.13***	.16***	.10**	1

This table shows the Pearson correlation matrix used in the OLS regressions of takeover premium on market optimism, CEO pay disparity, bidder and target financial specifics, deal characteristics and bidder corporate governance. Variables are defined in Appendix E. The statistical significance of correlation is denoted by the asterisk as * $p < .1$, ** $p < .05$, *** $p < .01$.

It can be seen from Table 6.2 that the correlations among all variables are in the small to medium magnitude, ranging from 0 to 0.39 except the statistically significant correlation of 0.82 between *RelPayTotal* and *CPSTotal*. Being the two alternative measures of CEO pay disparity, the correlation between CEO compensation compared with the average compensation of other directors and to the total compensation of all directors on the board is not unexpected. Other relatively large and statistically significant correlations can be found among *RelativeSize* with several variables including *BidderROA*, *CashPayment* and *BoardSize*. This is not unanticipated because it is highly likely that bidder performance, method of payment and the number of directors on the board relate to the size of the acquiring firms and the value of the takeover transaction. The correlation between *BoardSize* and *InsiderRatio* is significant and negative (-0.25), between *InsiderRatio* and *RelPayTotal* (*CPSTotal*) is negative and statistically significant at -0.27 (-0.30). The main dependent variable *Premium* is significantly correlated with several control variables including *OPT*, *RelPayTotal*, *CPSTotal*, *RelativeSize* and *CEOTenure*, suggesting that these variables may be powerful factors in explaining takeover premium. In general, the coefficient correlation among variables are not large, signifying that multicollinearity is not a main issue of the models.

6.1.2.1 The Impact of Market Optimism on Takeover Premium

As can be seen in Column (1) of Table 6.3, the coefficient of *OPT* is significantly positive at the 10% level, implying that high market optimism is associated with a significant increase in takeover premium. It is evident that when conducting a deal in high market optimism, bidders offer an economically significant higher premium of 9.89% to target shareholders compared to that of the deal initiated in a low optimistic condition. Together with the univariate analysis, this finding supports *Hypothesis H_{1a}* that there is a significantly positive association between bid premium and market optimism. Empirically, findings on the impact of market optimism in this thesis is in contrast to what have been observed in the US market by Bouwman et al. (2009), who report that deals processed in a high valuation market have a significantly lower premium than those in a low valuation period.

The finding in Column (1) is predicted by both of the market misvaluation theory and the managerial power theory. The *market misvaluation theory* argues that takeovers are initiated due to market mispricing (Shleifer and Vishny, 2003) or by misvaluation of takeover synergies between the merging parties (Rhodes-Kropf and Viswanathan, 2004). A group of irrational investors who have the tendency to be overoptimistic about the future of firms and form the optimism at the market level (Festinger, 1957; Nickerson, 1998; Weber and Camerer, 1998; Baker and Nofsinger, 2002; Barber and Odean, 2002; Shefrin, 2002; Frazzini, 2006). In this circumstance, the market misvaluation theory claims that managers of the bidding firms have the ability to time the market and take advantage of investor sentiment. Therefore, they offer higher premiums to lock in the deals (Shleifer and Vishny, 2003). Alternatively, the *managerial power theory* proposes that, because of self-interest, hubris and entrenchment, managers of a bidding firm are likely to overestimate the prospect of the synergies and pay a large premium. This behaviour becomes more prevalent in high market optimism when managers consider this period to be a good time to pursue their own interest (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990).

6.1.2.2 The Impact of CEO Pay Disparity on Takeover Premium

This thesis operationalises the effect of CEO pay disparity on takeover offer through two proxies, the CEO relative pay to the average pay of other directors and the CEO pay slice as a fraction of total compensation of all directors on the board. In Columns (2) and (4) of Table 6.3, this research finds clear evidence that CEO relative pay in the cash component and total compensation are associated with a significant increase in takeover premium. The coefficients of *RelPayShort* and *RelPayTotal* variables are positive and economically significant at the 5% level. It is shown that CEOs who receive high *RelPayShort* (*RelPayTotal*) may lift up the takeover premium by 8.57% (8.25%) compared to premium offered by their counterparts. Interestingly, as reported in Column (3), the coefficient of the *RelPayLong* is negative and insignificant, indicating that there is not enough evidence that CEOs of bidding firms who receive high long-term relative pay offer a higher price in takeover bids. Similar results are reported when examining the influence of CEO pay slice on bid premium. In Columns (5) and (7), an increase in the magnitude of the coefficients of *CPSShort*

and *CPSTotal* are observed. Compared with the coefficients reported in Columns (2) and (4), the positive coefficient in the *CPSShort* model increases by 18.48% at the 5% significant level while that in the *CPSTotal* model increases by 9.99%, significant at the 5% level.

The results of the multivariate analysis are consistent with the univariate analysis reported in Table 6.1. It reveals that takeover premiums increase significantly if cash pay and total pay to CEOs of acquiring firms are relatively higher than the average compensation paid to other directors or occupy a larger slice of the total expense to the management team. This finding partially supports *Hypothesis H_{1b}* that there is an association between CEO pay disparity and takeover premium in the short-term compensation and total compensation categories. A similar relationship is not found in the long-term category. According to the *managerial power theory*, managers tend to reflect their arrogance and self-interests into their organisation's strategies when setting the price for takeover deals (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990; Hayward and Hambrick, 1997). Moreover, the managerial power theory argues that CEO pay disparity indicates the CEO ability to impose their dominance to pursue their interests and to capture the pay package (Hayward and Hambrick, 1997; Bebchuk and Fried, 2003). Therefore, higher CEO pay disparity is related to the higher bidding price. Meanwhile, the *efficient contracting theory* establishes that CEOs of acquiring firms who are paid relatively higher than other directors have superior skills in analysing the transactions (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). For this reason, they offer appropriate premiums, which, if necessary, may be higher than the premiums that CEOs with a low pay discrepancy offer. To this point, there is not enough evidence to determine whether findings in Table 6.3 support the managerial power hypothesis or the efficient contracting hypothesis. Further analyses on the performance of the bidding firms are required before making such conclusion.

Table 6.3 Regression on Takeover Premium

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
OPT	9.8850* (1.96)						
RelPayShort		8.5739** (2.18)					
RelPayLong			-6.4649 (-1.26)				
RelPayTotal				8.2470** (2.08)			
CPSShort					10.1584** (2.56)		
CPSLong						-1.0609 (-0.21)	
CPSTotal							9.0710** (2.28)
RelativeSize	-3.4585** (-2.51)	-3.2835** (-2.39)	-6.4672*** (-3.45)	-3.1928** (-2.31)	-2.4360* (-1.76)	-5.5692*** (-3.01)	-2.4235* (-1.75)
TargetROA	-0.3264 (-0.09)	-0.2594 (-0.07)	-1.4418 (-0.35)	-0.0089 (-0.00)	-2.5726 (-0.71)	-3.2498 (-0.80)	-2.6120 (-0.72)
BidderROA	8.6460 (0.54)	10.9637 (0.68)	-14.9846 (-0.69)	10.0196 (0.62)	1.4240 (0.09)	-24.0113 (-1.11)	1.3666 (0.08)
BidderLEV	-0.6574 (-0.28)	-1.0908 (-0.46)	-1.8887 (-0.64)	-1.1907 (-0.50)	0.4293 (0.18)	-0.0022 (-0.00)	0.1524 (0.06)
Diversification	-9.4980** (-2.09)	-9.4174** (-2.08)	-9.9019 (-1.53)	-9.1795** (-2.02)	-5.8617 (-1.29)	-7.5161 (-1.17)	-5.5716 (-1.22)
HostileBid	-4.6784 (-1.06)	-5.6538 (-1.28)	-11.7662 (-1.82)	-5.6218 (-1.27)	-8.5781 (-1.94)	-10.9031 (-1.71)	-8.6425 (-1.95)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT	RelPayShort	RelPayLong	RelPayTotal	CPSShort	CPSLong	CPSTotal
CashPayment	3.2070 (0.69)	3.7068 (0.80)	-10.8823 (-1.65)	3.7061 (0.80)	2.3822 (0.51)	-10.0050 (-1.54)	2.0677 (0.44)
CompetingBid	-4.0561 (-0.82)	-3.4583 (-0.70)	-4.4402 (-0.70)	-2.9201 (-0.59)	-4.6967 (-0.95)	-6.4722 (-1.04)	-4.5430 (-0.92)
RevisedBid	6.0248 (1.26)	6.3503 (1.33)	12.3593 (1.90)	6.3449 (1.33)	4.7095 (0.98)	10.4275 (1.62)	4.7242 (0.99)
BoardSize	-0.4238 (-0.50)	-0.4599 (-0.54)	-0.2782 (-0.23)	-0.5080 (-0.60)	-0.6735 (-0.79)	-0.5741 (-0.49)	-0.6290 (-0.74)
InsiderRatio	-10.4183 (-0.83)	-3.5645 (-0.28)	-13.5254 (-0.80)	-2.4707 (-0.19)	-6.7883 (-0.52)	-9.1506 (-0.56)	-6.3239 (-0.47)
CEODuality	-3.1578 (-0.45)	-4.2793 (-0.61)	-7.8823 (-0.79)	-4.0379 (-0.57)	-1.2898 (-0.18)	-10.9362 (-1.12)	-0.9674 (-0.14)
CEOTenure	0.0008 (0.85)	0.0008 (0.84)	-0.0001 (-0.07)	0.0007 (0.76)	0.0010 (1.06)	0.0003 (0.24)	0.0009 (0.97)
CEOOwnership	0.1641 (1.35)	0.2018* (1.66)	0.4499** (2.59)	0.2029* (1.67)	0.1464 (1.20)	0.4536*** (2.64)	0.1582 (1.30)
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	29.8867** (2.22)	30.7238** (2.32)	47.9546* (1.74)	31.4908** (2.39)	31.4270** (2.34)	53.1406* (1.96)	33.1016** (2.48)
<i>N</i>	423	423	246	423	423	246	423
<i>R</i> ²	0.1508	0.1528	0.2205	0.1519	0.1579	0.2396	0.1549

This table shows the results of the OLS regressions of takeover premium on market optimism, CEO pay disparity, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 transactions announced from 2002 to 2015 between listed targets and bidders on the ASX. *Premium* is the ratio of the offer price, minus the target share price 60 days prior to the announcement, divided by pre-takeover share price, expressed in percentage. Column (1) presents the regression against market optimism (*OPT*). Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure. Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). CEO relative pay is the ratio of CEO pay over the average pay of other directors on the board. CEO pay slice is the ratio of CEO pay over the total pay of all directors on the board. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity. Control variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.1.2.3 The Impact of Control Variables on Takeover Premium

As can be seen in Table 6.3, the coefficients of several other control variables are significant in determining takeover premium. *RelativeSize* is significantly negative in all columns. It implies that larger deals relative to the market value of the acquiring firms receive lower takeover premiums than that of the smaller transactions. The information asymmetry, liquidity, risks and complexity associated with size can explain this negative association (Anderson et al., 1994; Alexandridis et al., 2013). Because there is relatively less available information about smaller firms, investors consider small targets to be riskier than their larger counterparts (Banz, 1981; Zeghal, 1984). Therefore, they require a higher premium to trade off with the estimation risk (Klein and Bawa, 1977). Additionally, small targets are relatively less liquid than larger firms. Hence, acquiring firms will need to offer a higher price to persuade the sellers (Lakonishok and Smidt, 1986). Moreover, Alexandridis et al. (2013) argue that large deals receive a lower premium because of the complexity and increased uncertainty associated with processing and managing sizeable deals. There is also evidence that *Diversification* is negatively and significantly associated with bid premium. One possible explanation may be that diversified acquisitions have been found to destroy firm value and become unattractive (Morck et al., 1990; Officer, 2003). As a result, larger deals receive a lower premium from the managers of the acquiring firms, especially when they are not driven by self-interest. Further, *CEOOwnership* has a significantly positive influence on bid premium. It indicates that a higher CEO shareholding is related to a higher offer price. It may be that when owning a higher fraction of firm's shares, CEOs may increase the premium to pursue their own interest (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990). Alternatively, shares and options, the two main components of CEO long-term compensation, are effective instruments to align the interest of the CEO and shareholders. Therefore, it is highly likely that CEOs who earn high long-term pay disparity offer higher premiums if they find the transaction to be beneficial to shareholders wealth (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004).

6.1.3 Summary: the Impact of Market Optimism and CEO Pay Disparity on Takeover Premium

In summary, the takeover premium analysis reveals that acquiring firms pay higher bid premiums in high market optimism. This finding supports *Hypothesis H_{1a}* that there is a statistically positive and significant association between market optimism and takeover premium. CEO pay disparity in the short-term component and total compensation categories are found to be positively related to takeover premium. There is not enough supporting evidence for the impact of CEO long-term pay disparity on the takeover premium. Findings in this section partially support *Hypothesis H_{1b}* on the association between CEO pay disparity and takeover premium in the short-term compensation and total compensation categories.

6.2 BIDDER ANNOUNCEMENT RETURNS ANALYSIS

This section tests *Hypothesis H_{2a}* on the association between market optimism and bidder announcement returns, and *Hypothesis H_{2b}* on the relationship between CEO pay disparity and bidder announcement returns. Firstly, the univariate analysis of bidder returns surrounding the announcement date are presented separately for takeover deals taken in high and low market optimism and takeover deals offered by acquiring firms' CEOs with high and low pay disparity. Secondly, the multivariate analysis is conducted to study the impact of market optimism and CEO pay disparity on takeover premium, after controlling for a number of factors including firm specifics, deal characteristics and bidder corporate governance. Further, this section aims at interpreting the implication of different theories in explaining bidder announcement returns in the Australian takeover market.

6.2.1 Univariate Analysis

This section presents and discusses the univariate analysis of the bidder announcement returns from takeovers announced in different market conditions and by CEOs with high and low pay disparity. Announcement return is the three-day cumulative abnormal returns (CARs) around the announcement date, calculated

against the All Ordinaries Index using the modified market model as specified in Section 4.4.1.

Table 6.4 CAR [-1, 1]: Univariate Evidence

	Obs	Mean (%)	Median (%)	Mean Difference		Median Difference	
				t-stat	p-value	Z-stat	p-value
Panel A: High Optimism vs Low Optimism							
High Optimism	231	1.16	0.83	1.9791	0.0485	1.830	0.0673
Low Optimism	192	-0.07	-0.17				
Total	423	0.60	0.25				
Panel B: High RelPay vs Low RelPay (CEO compensation/Average compensation of the board)							
Short-term Pay							
High	178	0.19	0.22	-1.1004	0.2718	-1.306	0.1914
Low	245	0.89	0.55				
Total	423	0.60	0.25				
Long-term Pay							
High	104	0.68	-0.12	0.6196	0.5361	0.662	0.5079
Low	142	0.16	-0.02				
Total	246	0.38	-0.11				
Total Comp							
High	196	0.18	0.24	-1.2375	0.2166	-1.167	0.2432
Low	227	0.96	0.55				
Total	423	0.60	0.25				
Panel C: High CPS vs low CPS (CEO compensation/Total compensation of the board)							
Short-term Pay							
High	194	0.14	-0.24	-1.3520	0.1771	-1.610	0.1074
Low	229	0.99	0.59				
Total	423	0.60	0.25				
Long-term Pay							
High	129	0.37	-0.30	-0.0264	0.9789	-0.003	0.9979
Low	117	0.39	0.22				
Total	246	0.38	-0.11				
Total Comp							
High	207	0.07	0.19	-1.6521	0.0993	-1.741	0.0816
Low	216	1.11	0.62				
Total	423	0.60	0.25				

This table shows the summary statistics of bidder announcement returns. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed bidders and targets on the ASX. *CARs* is the three-day cumulative abnormal returns to acquiring firms around the announcement date, calculated against the All Ordinaries Index using the modified market model. Panel A presents the mean and median CAR [-1, 1] from takeovers announced in high and low *Optimism* months. Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure. Panel B and C present the mean and median CAR[-1, 1] of takeovers announced by CEOs with high and low pay disparity, measured by *RelPay* and *CPS*, in the short-term compensation, long-term compensation and total compensation categories. *RelPay* is the ratio of CEO pay over the average pay of other the directors on the board. *CPS* is the ratio of CEO pay over the total pay of all directors on the board. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity. Bold figures indicate the significant difference at the level of 10% or better.

Table 6.4 shows that acquirers have an average (median) CARs of 0.60% (0.25%) over the three days surrounding the announcement date. In the Australian takeover literature, the overall bidder positive returns range from 0.37% to 1.05%. For the earlier period of 1996 to 2003, acquiring firms earn 1.05% from one day prior to announcement to one day post-announcement (Diepold et al., 2008). Similar findings (0.37%) are also reported by Porter and Singh (2010) for the period from 2000 to 2006. In a sample of 272 takeover transactions from 2004 to 2011, Bugeja, Matolcsy, Mehdi, et al. (2017) observe that bidding firms gain 0.6% for CARs three days surrounding announcement.

It is interesting to note from Panel A of Table 6.4 that the overall positive gain of acquiring firms in the sample is driven by the gains of deals announced in high market optimism. Acquiring firms who initiate takeover deals in high market optimism earn statistically significant positive abnormal returns during the three-day announcement period, while the acquirers who announce the transactions in low market optimism realise negative returns. On average, in high market optimism, bidders generate an average gain of 1.16% over the three days surrounding announcement. However, transactions undertaken in low market optimism fail to demonstrate such a level of performance. The average three-day CARs to bidding firms in low market optimism is -0.07% . The difference in mean (median) is statistically significant at the 5% (10%) level. It indicates that acquirers who undertake takeover bids in high market optimism outperform those in low market optimism. The result is consistent with the existing literature on bidder announcement returns when classifying the market based on detrended market P/E. Bouwman et al. (2009) observe that acquirers who announce takeovers in high stock market optimism experience insignificant abnormal returns of -0.04% . When processing takeovers in low market optimism, bidders suffer severe significant negative abnormal returns of -1.31% . The difference between the three-day CARs for the two groups (1.28%) is significant. Croci et al. (2010) report that the market reaction to acquisition deals undertaken during bull periods is significantly positive (1.21%) and outperform those in low valuation periods (0.34%). However, the difference of 0.87% is not statistically significant. Rosen (2006) finds that announcing an acquisition in a rising market yields a better CARs than that in a falling market. Overall, findings from the univariate

analysis predict that there is a likely positive association between market optimism and bidder announcement returns, hence *Hypothesis H_{2a}* seems to be supported.

The CARs reported in Panel B and Panel C Table 6.4 show a different picture. The two panels compare the abnormal returns around the takeover announcement period gained by bidders who pay their CEOs high and low pay disparity, measured as relative pay in Panel B and pay slice in Panel C. Although positive announcement returns of 0.60% for all takeover deals are observed, a detailed examination of most proxies of CEO pay disparity finds no evidence that CEOs with high pay disparity outperform their counterparts. In Panel B, acquiring firms that reward their CEOs a high relative compensation in cash and total pay generate mean (median) returns of 0.19% (0.22%) and 0.18% (0.24%) respectively. These gains are lower than that of the firms with low CEO relative pay, recorded at 0.89% (0.55%) and 0.96 (0.55%). Both the parametric test (t-test) and the nonparametric Mann–Whitney test indicate that there is no statistical difference in CARs to bidders during the three-day period surrounding announcement. In contrast, firms in which CEOs earn high relative long-term compensation gain average announcement returns of 0.68%, which is four times higher than that of firms with low CEO relative long-term pay. However, this outperformance is not statistically significant and the pattern is not consistent in the median value, where a lower return is recorded for acquirers with high relative long-term pay (−0.12%) than their counterparts (−0.02%).

In Panel C, when CEOs of acquiring firms are grouped by high and low pay slice, acquiring firms who pay their CEOs a higher pay slice across the three compensation categories (short-term, long-term and total pay) generate lower mean (median) returns over the three days surrounding announcement than their counterparts. The average announcement returns are recorded at 0.14%, 0.37% and 0.07% respectively for the three pay types, compared to 0.99%, 0.39% and 1.11% for the low CEO relative pay. The median returns depict similar pattern. Nonetheless, the parametric t-test and nonparametric Mann–Whitney tests are only significant at the 10% level in the total pay category. The findings seem to be consistent with the findings of Bebchuk et al. (2011) who observe that CEOs with high pay disparity are more likely to make acquisitions which are perceived less favourably by the market.

So far, univariate results provide weak evidence that CEOs with high pay disparity generate lower announcement returns to the acquiring firms than CEOs with low pay disparity.

In summary, takeover deals announced in high market optimism enjoy better announcement returns than those in low market optimism. However, takeover deals conducted by CEOs with a high pay disparity receive insignificantly lower market returns (in four out of six categories) or a significantly unfavourable response from the market (in the high CEO total pay slice category). The univariate analysis provides initial evidence for *Hypothesis H_{2a}* on the association between market optimism and bidder announcement returns. The univariate analysis also suggests a weak evidence for *Hypothesis H_{2b}* on the association between CEO relative compensation and bidder performance surrounding announcement. *Hypothesis H_{2a}* and *Hypothesis H_{2b}* will be further tested and the results linked with different theories after controlling for a number of factors in the following section.

6.2.2 Multivariate Analysis

The results presented in the univariate analysis indicate that takeovers initiated in high market optimism create higher announcement returns for acquiring firms than deals conducted in low market optimism. It is also evident that takeover deals announced by CEOs with higher pay disparity realise lower market returns than transactions undertaken by their counterparts. However, the univariate analysis does not take into consideration the multiple effects that can impact the bidder abnormal returns surrounding announcement. For that reason, multivariate regressions in Equation 4.14 are performed whereby the bidders three-day CARs are regressed on a number of explanatory variables. Following the literature, the control variables included in all models are bid premium, target and bidder financial specifics, deal characteristics and bidder corporate governance. The Pearson correlation matrix of variables used to analyse bidder announcement returns is presented in Table 6.5.

Table 6.5: Correlation Matrix of Bidder Announcement Returns Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
CAR	(1)	1																			
OPT	(2)	.10**	1																		
RelPayTotal	(3)	-.06	.07	1																	
CPSTotal	(4)	-.08*	.05	.82***	1																
Premium	(5)	-.01	.10**	.11**	.08*	1															
RelativeSize	(6)	.03	-.02	-.12**	-.10**	-.17***	1														
TargetROA	(7)	-.11**	.01	-.01	-.01	-.02	-.01	1													
BidderROA	(8)	-.03	.08	.02	.04	.06	-.24***	.23***	1												
BidderLEV	(9)	.05	.06	.06	.08	-.02	-.09*	.14***	.24***	1											
Diversification	(10)	.03	-.03	-.04	-.03	-.07	-.07	-.05	-.02	.04	1										
HostileBid	(11)	-.01	-.07	.05	.08	-.06	.06	-.03	0	-.05	.08*	1									
CashPayment	(12)	.05	.07	.07	.09*	.07	-.39***	.18***	.26***	.11**	.17***	.05	1								
CompetingBid	(13)	.04	.06	-.01	.02	-.01	.03	.07	.10**	0	-.11**	.15***	.03	1							
RevisedBid	(14)	.01	.02	.02	.03	.03	.02	-.03	.01	.10**	.08	.33***	.07	.16***	1						
SuccessfulDeal	(15)	.05	.10**	-.07	-.05	.10**	-.19***	.02	.04	.03	-.07	-.51***	.11**	-.21***	0	1					
BoardSize	(16)	0	.03	.12**	.14***	-.01	-.31***	.18***	.26***	.17***	-.02	-.02	.28***	.10*	.01	-.02	1				
InsiderRatio	(17)	.14***	-.01	-.27***	-.30***	-.05	.10**	-.09*	-.13***	0	.04	.08*	-.07	-.04	.09*	-.01	-.25***	1			
CEODuality	(18)	.06	-.04	-.01	.04	-.01	-.02	-.11**	-.09*	-.01	.07	.11**	.05	.01	.03	-.06	-.09*	.07	1		
CEOTenure	(19)	-.02	.04	.04	.06	.12**	-.23***	.02	.20***	.07	.08	-.03	.17***	-.07	.01	.14***	.05	-.05	.02	1	
CEOOwnership	(20)	.10**	.05	-.13***	-.05	.03	.03	-.09*	.06	.03	.09*	.10**	.04	-.03	.06	0	-.15***	.13***	.16***	.10**	1

This table shows the Pearson correlation matrix used in the OLS regressions of bidder announcement returns on market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. Variables are defined in Appendix E. The statistical significance of correlation is denoted by the asterisk as * $p < .1$, ** $p < .05$, *** $p < .01$.

Table 6.5 highlights a number of observations. Firstly, apart from the significantly positive correlation of 0.82 between the two alternative measures of CEO pay disparity, *RelPayTotal* and *CPSTotal*, the correlations among other variables are in the small to medium range (0–0.39). This range suggests that, in general, the correlation among variables is not strong. The highest correlation of the main dependent variable (*CAR*) is with *TargetROA* at –0.11, followed by the correlation with *OPT* at 0.11, both significant at the 5% level. This predicts that *OPT* and *TargetROA* may be among the determinants of announcement returns to bidding firms. Secondly, the relatively large and statistically significant correlation observed among *RelativeSize*, *BidderROA*, *BiderLEV* and *CashPayment* suggest that financial specifics may drive takeover choice. Thirdly, the correlation among *BoardSize*, *InsiderRatio*, *RelPayTotal*, *CPSTotal*, *CompetingBid* and *RevisedBid* are not unanticipated because of the pay disparity calculation and the relatedness of the different characteristics of takeover deals. Overall, there is no concern regarding unusual correlations among the variables used in the announcement returns analysis.

The results of regression analysis are shown in Table 6.6 with Column (1) presenting the results of the regression with the *OPT* variable. Results with the CEO relative pay variables (*RelPayShort*, *RelPayLong* and *RelPayTotal*) are presented in Columns (2), (3) and (4). Analysis of the CEO pay slice variables (*CPSShort*, *CPSLong* and *CPSTotal*) are shown in Columns (5), (6) and (7).

6.2.2.1 The Impact of Market Optimism on Bidder Announcement Returns

It can be seen in Column (1) of Table 6.6 that the coefficient of the variable *OPT* is significantly positive at the 10% level. It shows that deals conducted in high market optimism generate 1.53% higher returns than that of deals announced in low market optimism. This finding is consistent with the univariate analysis in Section 6.2.1 and with previous findings in the literature. Rosen (2006) finds a hot stock market leads to better announcement returns. Bouwman et al. (2009) confirm that acquisitions in high valuation markets driven by optimistic investors experience significantly higher CARs than that of deals conducted in low valuation conditions. They conclude that the market

seems to look more favourably upon acquisition announcements during high valuation markets than during low valuation markets. Similarly, Croci et al. (2010) observe that the market returns for acquisitions undertaken during high valuation markets is significantly positive (1.21%) compared with deals initiated in low valuation conditions (0.34%).

The significant and positive coefficient of market optimism presented in Column (1) supports *Hypothesis H_{2a}* that there is a strong and positive association between market optimism and bidder returns announcement. Further, it is suggested that the findings are aligned with both the neoclassical theory and the market misvaluation theory. According to the *neoclassical theory*, market optimism is the period following the positive shocks and loose credit policy in which the managers of the acquiring firms aim to undertake value-enhancing decisions (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2001). With these fundamentals, the returns from transactions processed in the optimistic market are equal or better than that of the deals conducted in the tougher market condition. Alternatively, under the *market misvaluation theory*, the optimistically irrational investors create market misvaluation. In this market, rational managers of the acquiring firms time the market to make stock-financed acquisitions. These transactions are value-creating surrounding announcement, which coincides with the upward movement of stock price as the result of the market sentiment (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006).

6.2.2.2 The Impact of CEO Pay Disparity on Bidder Announcement Returns

It can be seen in Columns (2), (3) and (4) of Table 6.6 that the coefficient of *RelPayShort*, *RelPayLong* and *RelPayTotal* variables are statistically insignificant. This result implies that the difference in CEO relative pay has no impact on bidder returns surrounding announcement. In Columns (5), (6) and (7) of Table 6.6, the coefficient estimates of *CPSShort*, *CPSLong* and *CPSTotal* variables are also consistently insignificant. Hence, there is not enough evidence that *CPS* has an impact on the announcement CARs of bidding firms.

Table 6.6 CAR [-1, 1]: Multivariate Regression

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
OPT	1.5035* (1.70)						
RelPayShort		-0.2335 (-0.34)					
RelPayLong			1.1480 (1.23)				
RelPayTotal				-0.3598 (-0.52)			
CPSShort					-0.2934 (-0.42)		
CPSLong						0.6388 (0.70)	
CPSTotal							-0.6548 (-0.94)
Premium	0.0020 (0.22)	0.0038 (0.43)	0.0120 (0.96)	0.0040 (0.45)	0.0038 (0.43)	0.0109 (0.87)	0.0041 (0.46)
RelativeSize	0.3383 (1.38)	0.3579 (1.46)	0.3895 (1.11)	0.3528 (1.43)	0.3591 (1.46)	0.3942 (1.12)	0.3574 (1.46)
TargetROA	-1.4187** (-2.24)	-1.4749** (-2.32)	-1.1886 (-1.59)	-1.4917** (-2.35)	-1.4857** (-2.34)	-1.1520 (-1.55)	-1.5138** (-2.38)
BidderROA	-2.2292 (-0.79)	-2.2226 (-0.79)	-7.1787 (-1.81)	-2.2135 (-0.79)	-2.2157 (-0.79)	-7.0446 (-1.77)	-2.2796 (-0.81)
BidderLEV	0.3810 (0.92)	0.3456 (0.83)	-0.1359 (-0.25)	0.3525 (0.85)	0.3466 (0.84)	-0.1385 (-0.26)	0.3746 (0.90)
Diversification	0.3200 (0.40)	0.2786 (0.35)	0.8153 (0.69)	0.2621 (0.33)	0.2770 (0.35)	0.8066 (0.68)	0.2388 (0.30)
HostileBid	0.0949 (0.10)	0.1266 (0.14)	1.3510 (1.04)	0.1358 (0.15)	0.1307 (0.14)	1.3367 (1.03)	0.1735 (0.19)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT	RelPayShort	RelPayLong	RelPayTotal	CPSShort	CPSLong	CPSTotal
CashPayment	1.0993 (1.35)	1.1844 (1.45)	1.0478 (0.87)	1.1862 (1.45)	1.1860 (1.45)	0.9954 (0.83)	1.2151 (1.49)
CompetingBid	1.0812 (1.24)	1.1895 (1.36)	2.6285** (2.22)	1.1659 (1.34)	1.1928 (1.37)	2.6701** (2.25)	1.1878 (1.36)
RevisedBid	-0.4061 (-0.47)	-0.3102 (-0.36)	-0.5440 (-0.44)	-0.3031 (-0.35)	-0.3129 (-0.36)	-0.5011 (-0.41)	-0.3031 (-0.35)
SuccessfulDeal	1.2984 (1.51)	1.3406 (1.55)	3.1923*** (2.82)	1.3340 (1.54)	1.3426 (1.55)	3.1820*** (2.81)	1.3402 (1.55)
BoardSize	0.2114 (1.42)	0.1995 (1.34)	0.1754 (0.81)	0.2009 (1.35)	0.2038 (1.36)	0.1668 (0.77)	0.2053 (1.38)
InsiderRatio	5.9557*** (2.71)	5.8971*** (2.61)	5.3115* (1.74)	5.7487** (2.52)	5.7990** (2.53)	4.7373** (1.59)	5.3665** (2.31)
CEODuality	1.0785 (0.88)	1.0112 (0.82)	0.1560 (0.09)	1.0095 (0.82)	1.0319 (0.84)	0.4681 (0.26)	1.0618 (0.86)
CEOTenure	-0.0001 (-0.53)	-0.0001 (-0.55)	-0.0001 (-0.63)	-0.0001 (-0.53)	-0.0001 (-0.55)	-0.0002 (-0.73)	-0.0001 (-0.52)
CEOOwnership	0.0224 (1.05)	0.0233 (1.09)	0.0585* (1.83)	0.0228 (1.07)	0.0240 (1.13)	0.0583* (1.82)	0.0232 (1.09)
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-6.4606*** (-2.62)	-5.1386** (-2.08)	-7.6689 (-1.48)	-5.0533** (-2.06)	-5.0557** (-2.03)	-7.2600 (-1.40)	-4.7629* (-1.93)
<i>N</i>	423	423	246	423	423	246	423
<i>R</i> ²	0.1301	0.1237	0.2015	0.1241	0.1239	0.1980	0.1255

This table shows the results of the OLS regressions of bidder announcement returns on market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. Announcement return is the three-day cumulative abnormal returns (CARs) around the announcement date, calculated against the All Ordinaries Index using the modified market model. Column (1) presents the regression against market optimism (*OPT*). Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure. Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). CEO relative pay is the ratio of CEO pay over the average pay of other directors on the board. CEO pay slice is the ratio of CEO pay over the total pay of all directors on the board. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity. Control variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Together with the univariate evidence presented earlier, there is not enough supporting evidence for the impact of CEO pay disparity on bidder announcement returns. Therefore, *Hypothesis H_{2b}* that there is an association between CEO pay disparity and bidder returns surrounding announcement is not supported. Additionally, the results in Table 6.6 do not support the *managerial power theory*, which proposes that CEO pay disparity is an indicator of the agency problem, CEO self-incentive, cognitive bias and ability to influence the board (Jensen, 1986a; Roll, 1986; Jensen, 1988; Scharfstein and Stein, 1990; Hayward and Hambrick, 1997; Bebchuk et al., 2002; Bebchuk and Fried, 2003). CEOs who earn a high pay disparity are likely to exercise their power to undertake value-decreasing takeovers, which result in lower returns to shareholders (Hayward and Hambrick, 1997; Bebchuk and Fried, 2003). Similarly, the announcement returns analysis in the present study does not find evidence to support the *efficient contracting theory*, which believes that higher CEO pay is associated with CEO skills and contribution to firm value (Lazear and Rosen, 1981; Lee et al., 2008; Kale et al., 2009). Although CEO pay disparity is not related to the immediate market reaction, it is conjectured that this relationship should be viewed in the longer horizon. The result of such analysis will be discussed in Section 6.3.

6.2.2.3 The Impact of Control Variables on Bidder Announcement Returns

The coefficient of *TargetROA* is negative and significant in five models. The opportunities for acquirers to improve poorly managed targets post the takeover can explain this negative correlation. Lang et al. (1989) and Servaes (1991) claim that when acquiring underperforming firms which is highly likely because of a poor-performing management team, bidding firms have a better chance to efficiently use target resources to implement value-enhancing changes. Therefore, the market responds favourably to takeover announcements targeted at firms with low ROA.

The proportion of executive directors on the board of directors (*InsiderRatio*) is positively related to bidder announcement returns. This finding is consistent with previous studies (Dalton and Kesner (1987), Baysinger and Hoskisson (1990), Donaldson and Davis (1991). Wagner III et al. (1998) and Ruigrok et al. (2006)) argue that executives have a deeper understanding of corporate activities and a better

capability to evaluate the manager's decisions. As a result, the presence of a higher number of executive directors on the board enhances bidder announcement returns. Interestingly, *Premium* is not found to be a significant indicator of announcement stock performance. This finding corroborates with Pettit (2005) claim that bid premium is not an indicative of either short-term or long-term success. He argues that successful deals demand disciplined acquirers, and that the takeover premium is not a reliable indicator of success because it is influenced by too many factors, including historical market values, strategic considerations and estimated synergies.

The coefficients of *SuccessfulDeal* and *CompetingBid* are significant in the *RelPayLong* and *CPSLong* models. *SuccessfulDeal* is positively related to announcement returns to acquiring firms. It has been argued that successful deals unlock the synergy, resulting in the combination of assets and resources, the potential benefits of the economies of scale and the enhancement of product efficiency (Asquith et al., 1983; Bradley et al., 1988). The positive coefficient of *CompetingBid* indicates that takeover deals that attract multiple bidders are more profitable than their less attractive counterparts; and that the presence of rivals may increase the short-term returns of the winner (Bradley et al., 1988).

6.2.3 Summary: the Impact of Market Optimism and CEO Pay Disparity on Bidder Announcement Returns

In summary, Section 6.2 finds that bidding firms earn abnormal announcement returns if the deals are conducted in high market optimism. This finding supports *Hypothesis H_{2a}* that there is a statistically significant association between market optimism and bidder returns surrounding announcement. This positive relationship is in accordance with the neoclassical theory and the market misvaluation theory. Regarding the impact of CEO pay disparity, findings from the multivariate analysis indicate that there is no relationship between CEO pay disparity and bidding firm announcement returns even though the univariate results provide weak evidence in the case of CEO pay slice. Therefore, findings in this study tend not to support *Hypothesis H_{2b}* on the association between CEO pay disparity and bidder returns surrounding announcement. Further, the position of both the managerial power theory and the

efficient contracting theory seem to not be supported. However, the question remains whether these findings hold when bidder long-term performance is examined, which will be discussed in the following section.

6.3 BIDDER LONG-TERM RETURNS ANALYSIS

The bidder announcement returns analysis in the previous section shows that deals initiated in high market optimism receive favourable response from investors while there is not enough evidence that deals conducted by CEOs with high pay disparity are value-generating or value-destroying. Nonetheless, it is susceptible that the initial market reaction will remain for a longer period. Hence, this section investigates the effects of market optimism and CEO pay disparity on bidder one-year and two-year post-takeover returns. This section presents the univariate and multivariate tests of *Hypothesis H_{3a}* on the association between market optimism and bidder long-term post-takeover returns, and *Hypothesis H_{3b}* on the relation between CEO pay disparity and bidder long-term post-takeover returns. Takeover deals are separated by market optimism and by CEO pay disparity, measured by CEO relative pay and CEO pay slice in the short-term component, long-term component and total pay.

6.3.1 Univariate Analysis

Table 6.7 presents the summary statistics of one-year and two-year buy-and-hold abnormal returns (BHARs) of bidders. BHARs is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. The procedure is specified in Section 4.4.2. As indicated in Table 6.7, for the period from 2002 to 2015, acquiring firms have an average negative one-year BHARs of -1.84% and two-year BHARs of -3.20%. The median figures are -1.47% and 2.80% respectively. These results are consistent with the findings of previous studies, which observe the post-takeover underperformance of bidding firms (Hayward and Hambrick, 1997; Brown and da Silva Rosa, 1998; Bouwman et al., 2009; Croci et al., 2010). Specifically, Hayward and Hambrick (1997) report that acquisitions generate an average one-year post-announcement return of -11%. Bouwman et al. (2009) claim

bidder underperformance of -7.22% over the three-year post-takeover period. Similarly, Croci et al. (2010) record an average negative return of -4.23% to the acquiring firms over the 36-month post-announcement period. In Australia, Brown and da Silva Rosa (1998) report poor bidder performance over the 6-month to 36-month post-takeover period.

Panel A of Table 6.7 reports the one-year and two-year post-takeover stock performance of acquiring firms that announce takeover bids in high and low market optimism. It can be seen that the average negative returns of -1.84% and -3.2% to acquiring firms in the one-year and two-year post-takeover periods are significantly driven by the underperformance of the firms that announce the deals in high market optimism. Specifically, bidders who conduct takeover deals in high market optimism experience negative returns of -4.72% on average while acquiring firms who initiate takeover bids in low market optimism generate average positive abnormal returns of 1.61% . However, the mean and median difference are not statistically significant. In the two-year post-announcement period, the former group records more severe negative return of -9.49% while the latter group generates significantly higher abnormal return of 4.36% . The parametric and nonparametric tests shows that the difference in mean and median returns in the two-year post-announcement period are statistically significant at the 10% level and 5% level. This result is in a sharp contrast with the announcement returns analysis and is consistent with prior studies on bidder performance in different market conditions (Bouwman et al., 2009; Petmezas, 2009; Duong and Izan, 2012). Bouwman et al. (2009) claim significantly negative BHARs of -11.32% for acquirers buying during high valuation markets and a less severe loss of -3.28% for low valuation market transactions. Petmezas (2009) reports that bidders engaged in acquisitions during high valuation periods generate superior abnormal returns relative to acquirers that made acquisitions during low valuation periods. The high valuation market in the studies of Bouwman et al. (2009) and Petmezas (2009) are periods where optimistic investors overestimate the prospect of the firms and create the market-wide sentiment. These periods can be considered as periods of high stock market optimism. In the Australian market, Duong and Izan (2012) present the evidence of bidder underperformance in both the 12-month and 18-month post-takeover returns at -2.91% and -2.82% respectively for deals initiated in wave

periods. Duong and Izan (2012) record average positive abnormal returns of 2.89% and 3.34% for deals announced in non-wave periods. Duong and Izan (2012) claim merger waves coincide with lower interest rates and higher economics expectations, which are closely related to the optimism not only in the bond market but also economy wide. Findings in this section indicate the market correction in the long term. This finding gives direct support for *Hypothesis H_{3a}* that there is an association between market optimism and bidder long-term performance.

Similar analysis of acquiring firm long-term returns is conducted separately for takeover deals announced by CEOs with high and low pay disparity, measured by *RelPay* and *CPS*, in Panel B and Panel C of Table 6.7. It is interesting to note that the negative returns of -1.84% and -3.2% to acquiring firms of the whole sample within one-year and two-year post-takeover period are mainly attributable to those who pay their CEOs low compensation disparity. Particularly, Panel B shows that bidding firms with CEOs having higher *RelPay* in the short-term component and total pay generate positive one-year post-takeover returns of 6.11% and 6.51% respectively, while their counterparts suffer the corresponding average loss of -7.62% and -9.05%. Similar patterns are found for *CPS* in the short-term component and total pay. In two years, further return improvement is reported for the former group while more severe losses occurred to the latter. Both of the parametric and nonparametric tests for the differences in mean and median are persistently significant at 10% or better, indicating that CEOs with high pay disparity significantly outperform their counterparts. Overall, the findings of the univariate analysis initially support *Hypothesis H_{3b}* that there is an association between CEO pay disparity and bidder one-year and two-year post-takeover performance.

Table 6.7 One-year and Two-year Post-takeover BHARs: Univariate Evidence

	Obs	One-year Post-takeover BHARs						Two-year Post-takeover BHARs					
		Mean Difference		Median Difference		t-stat	p-value	Mean (%)	Median (%)	Mean Difference		Median Difference	
		Mean (%)	Median (%)	z-stat	p-value					t-stat	p-value	z-stat	p-value
Panel A: High Optimism vs Low Optimism													
High Optimism	231	-4.72	-3.89	-1.1722	0.2418	-1.254	0.2099	-9.49	-3.71	-1.6740	0.0949	-2.172	0.0299
Low Optimism	192	1.61	3.45					4.36	14.45				
Total	423	-1.84	-1.47					-3.20	2.80				
Panel B: High RelPay vs Low RelPay (CEO compensation/Average compensation of the board)													
Short-term Pay													
High	178	6.11	.97	2.5344	0.0116	2.313	0.0207	10.44	10.49	2.8379	0.0048	2.543	0.0110
Low	245	-7.62	-5.73					-13.11	-2.59				
Total	423	-1.84	-1.47					-3.20	2.80				
Long-term Pay													
High	104	-5.07	-6.03	-0.4055	0.6855	-0.543	0.5869	4.01	6.83	1.2963	0.1961	1.213	0.2253
Low	142	-2.01	-3.63					-10.24	-3.19				
Total	246	-3.30	-4.27					-4.21	.42				
Total pay													
High	196	6.51	3.54	2.9068	0.0038	2.660	0.0078	9.04	10.41	2.7747	0.0058	2.585	0.0097
Low	227	-9.05	-6.64					-13.77	-4.25				
Total	423	-1.84	-1.47					-3.20	2.80				
Panel C: High CPS vs Low CPS (CEO compensation/Total compensation of the board)													
Short-term Pay													
High	194	4.08	2.10	2.0329	0.0427	1.901	0.0572	6.60	10.34	2.1935	0.0288	2.147	0.0318
Low	229	-6.86	-6.64					-11.50	-3.71				
Total	423	-1.84	-1.47					-3.20	2.80				
Long-term Pay													
High	129	-3.66	-4.41	-0.0999	0.9205	-0.022	0.9821	2.21	6.68	1.2423	0.2153	1.194	0.2324
Low	117	-2.91	-4.14					-11.31	-2.67				
Total	246	-3.30	-4.27					-4.21	0.42				

	Obs	One-year Post-takeover BHARs						Two-year Post-takeover BHARs					
		Mean (%)	Median (%)	Mean Difference		Median Difference		Mean (%)	Median (%)	Mean Difference		Median Difference	
				t-stat	p-value	z-stat	p-value			t-stat	p-value	z-stat	p-value
Total Pay													
High	207	5.06	2.90	2.5258	0.0119	2.458	0.0140	4.55	9.83	1.8431	0.0660	1.797	0.0723
Low	216	-8.46	-6.66					-10.63	-1.48				
Total	423	-1.84	-1.47					-3.20	2.80				

This table shows the summary statistics of the bidder long-term returns. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. The buy-and-hold abnormal returns (*BHARs*) is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Panel A presents the mean and median one-year and two-year *BHARs* from takeovers announced in high and low *Optimism* months. Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure. Panel B and C present the mean and median one-year and two-year *BHARs* of takeovers announced by CEOs with high and low pay disparity, measured by *RelPay* and *CPS*, in short-term compensation, long-term compensation and total compensation. *RelPay* is the ratio of CEO pay over the average pay of other the directors on the board. *CPS* is the ratio of CEO pay over the total pay of all directors on the board. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity. Bold figures indicate the significant difference at the level of 10% or better.

6.3.2 Multivariate Analysis

This section discusses the results of the multivariate analysis on the impact of market optimism and CEO pay disparity on acquiring firm long-term performance. The same set of control variables used in the announcement returns analysis in Section 6.2.2 is included. The results are presented in Table 6.9 for one-year returns (*BHAR1y*) and in Table 6.10 for two-year returns (*BHAR2y*). In each table, Column (1) studies the impact of market optimism (*OPT*); Columns (2), (3) and (4) examine the impact of CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*); and Columns (5), (6) and (7) investigate the impact of CEO pay slice (*CPSShort*, *CPSLong* and *CPSTotal*). The correlation matrix of variables used in these models is provided in Table 6.8. It can be noted that the correlation between *BHAR1y* and *BHAR2y* is 0.53 and significant at the 1% level. This high correlation is anticipated because *BHAR1y* forms a part of the *BHAR2y*. These two main dependent variables are significantly correlated with *RelPayTotal* and *CPSTotal*. The association of acquiring firm long-term returns with *OPT* can only be observed in the two-year post-takeover period. The remaining relationship among other variables follows a similar pattern to that reported in Table 6.5, suggesting that multicollinearity is not a major concern in the following analysis.

Table 6.8 Correlation Matrix of Bidder Long-term Returns Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
BHAR1y	(1)	1																				
BHAR2y	(2)	.53***	1																			
OPT	(3)	-.06	-.21***	1																		
RelPayTotal	(4)	.14***	.13***	.07	1																	
CPSTotal	(5)	.13***	.11**	.05	.82***	1																
Premium	(6)	.06	.05	.10**	.11**	.08*	1															
RelativeSize	(7)	-.04	-.11**	-.02	-.12**	-.10**	-.17***	1														
TargetROA	(8)	-.01	-.04	.01	-.01	-.01	-.02	-.01	1													
BidderROA	(9)	.02	.01	.08	.02	.04	.06	-.24***	.23***	1												
BidderLEV	(10)	-.04	-.01	.06	.06	.08	-.02	-.09*	.14***	.24***	1											
Diversification	(11)	-.01	-.08*	-.03	-.04	-.03	-.07	-.07	-.05	-.02	.04	1										
HostileBid	(12)	.04	.09*	-.07	.05	.08	-.06	.06	-.03	0	-.05	.08*	1									
CashPayment	(13)	.12**	.04	.07	.07	.09*	.07	-.39***	.18***	.26***	.11**	.17***	.05	1								
CompetingBid	(14)	.10**	.04	.06	-.01	.02	-.01	.03	.07	.10**	0	-.11**	.15***	.03	1							
RevisedBid	(15)	-.01	.03	.02	.02	.03	.03	.02	-.03	.01	.10**	.08	.33***	.07	.16***	1						
SuccessfulDeal	(16)	.02	-.04	.10**	-.07	-.05	.10**	-.19***	.02	.04	.03	-.07	-.51***	.11**	-.21***	0	1					
BoardSize	(17)	.04	.03	.03	.12**	.14***	-.01	-.31***	.18***	.26***	.17***	-.02	-.02	.28***	.10*	.01	-.02	1				
InsiderRatio	(18)	-.02	-.04	-.01	-.27***	-.30***	-.05	.10**	-.09*	-.13***	0	.04	.08*	-.07	-.04	.09*	-.01	-.25***	1			
CEODuality	(19)	-.05	0	-.04	-.01	.04	-.01	-.02	-.11**	-.09*	-.01	.07	.11**	.05	.01	.03	-.06	-.09*	.07	1		
CEOTenure	(20)	-.01	-.02	.04	.04	.06	.12**	-.23***	.02	.20***	.07	.08	-.03	.17***	-.07	.01	.14***	.05	-.05	.02	1	
CEOOwnership	(21)	-.04	-.06	.05	-.13***	-.05	.03	.03	-.09*	.06	.03	.09*	.10**	.04	-.03	.06	0	-.15***	.13***	.16***	.10**	1

This table shows the Pearson correlation matrix used in the OLS regressions of bidder long-term returns on market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. Variables are defined in Appendix E. The statistical significance of correlation is denoted by the asterisk as * $p < .1$, ** $p < .05$, *** $p < .01$.

Table 6.9 One-year Post-takeover BHARs: Multivariate Regression

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
OPT	-5.6896 (-0.75)						
RelPayShort		12.6146** (2.13)					
RelPayLong			1.1087 (0.13)				
RelPayTotal				16.9901*** (2.87)			
CPSShort					10.0716* (1.69)		
CPSLong						1.6508 (0.20)	
CPSTotal							13.9934** (2.36)
Premium	0.0821 (1.07)	0.0581 (0.76)	0.1106 (0.97)	0.0530 (0.70)	0.0723 (0.95)	0.0833 (0.72)	0.0681 (0.90)
RelativeSize	0.4324 (0.21)	0.4768 (0.23)	2.8163 (0.89)	0.7016 (0.34)	0.3665 (0.18)	2.6077 (0.83)	0.3819 (0.18)
TargetROA	-3.3764 (-0.62)	-2.6972 (-0.50)	-10.3051 (-1.53)	-1.9687 (-0.37)	-2.3254 (-0.43)	-10.2458 (-1.53)	-1.9960 (-0.37)
BidderROA	-18.4538 (-0.77)	-15.7270 (-0.65)	0.4525 (0.01)	-16.5306 (-0.69)	-16.4111 (-0.68)	0.2323 (0.01)	-15.6797 (-0.65)
BidderLEV	-1.3092 (-0.37)	-1.3726 (-0.39)	-4.6223 (-0.96)	-1.6717 (-0.48)	-1.4241 (-0.40)	-4.8788 (-1.01)	-1.9552 (-0.55)
Diversification	0.7125 (0.10)	1.4229 (0.21)	-16.1569 (-1.52)	2.1260 (0.31)	1.1202 (0.16)	-16.3949 (-1.54)	1.7597 (0.26)
HostileBid	9.7745 (1.26)	9.2037 (1.19)	6.1161 (0.52)	8.8323 (1.15)	9.7593 (1.25)	6.0370 (0.51)	8.9748 (1.15)
CashPayment	19.3265*** (2.77)	18.7951*** (2.71)	30.4985*** (2.81)	18.7360*** (2.71)	18.8427*** (2.71)	29.9915*** (2.77)	18.3045*** (2.64)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT	RelPayShort	RelPayLong	RelPayTotal	CPSShort	CPSLong	CPSTotal
CompetingBid	17.3347**	17.0494**	25.0213**	18.1468**	17.0717**	25.0970**	17.1711**
	(2.32)	(2.30)	(2.33)	(2.45)	(2.29)	(2.33)	(2.32)
RevisedBid	-8.2635	-9.3687	-13.0301	-9.6034	-9.0229	-12.6620	-9.0603
	(-1.12)	(-1.28)	(-1.17)	(-1.31)	(-1.23)	(-1.14)	(-1.24)
SuccessfulDeal	10.2272	11.4169	13.6018	11.5450	11.3193	14.2760	11.0221
	(1.39)	(1.55)	(1.33)	(1.58)	(1.54)	(1.39)	(1.50)
BoardSize	0.6475	0.7667	-0.1931	0.6933	0.6049	-0.1649	0.6074
	(0.51)	(0.60)	(-0.10)	(0.55)	(0.47)	(-0.08)	(0.48)
InsiderRatio	3.2564	11.8482	15.0371	17.7259	12.4499	14.8745	18.2099
	(0.17)	(0.62)	(0.55)	(0.92)	(0.64)	(0.55)	(0.92)
CEODuality	-16.4401	-16.8802	-18.7574	-16.7022	-17.5280*	-18.9732	-17.7161*
	(-1.56)	(-1.61)	(-1.14)	(-1.60)	(-1.67)	(-1.17)	(-1.69)
CEOTenure	-0.0002	-0.0002	0.0021	-0.0003	-0.0002	0.0021	-0.0004
	(-0.16)	(-0.15)	(1.11)	(-0.25)	(-0.18)	(1.08)	(-0.26)
CEOOwnership	-0.0439	-0.0123	0.0707	0.0051	-0.0509	0.0848	-0.0327
	(-0.24)	(-0.07)	(0.24)	(0.03)	(-0.28)	(0.29)	(-0.18)
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-15.9602	-31.4350	8.8510	-34.0465	-31.0831	8.9373	-33.4304
	(-0.75)	(-1.50)	(0.19)	(-1.64)	(-1.46)	(0.19)	(-1.59)
<i>N</i>	423	423	246	423	423	246	423
<i>R</i> ²	0.1205	0.1296	0.1696	0.1380	0.1267	0.1683	0.1328

This table shows the results of the OLS regressions of bidder one-year post-takeover returns on market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 transactions announced from 2002 to 2015 between listed targets and bidders on the ASX. The buy-and-hold abnormal returns (*BHARs*) is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Column (1) presents the regression against market optimism (*OPT*). Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure. Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). CEO relative pay is the ratio of CEO pay over the average pay of other directors on the board. CEO pay slice is the ratio of CEO pay over the total pay of all directors on the board. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity. Control variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6.10 Two-year Post-takeover BHARs: Multivariate Regression

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
OPT	-24.3201* (-1.92)						
RelPayShort		18.5014* (1.86)					
RelPayLong			1.8424 (0.14)				
RelPayTotal				20.0936** (2.02)			
CPSShort					19.3973* (1.95)		
CPSLong						0.5578 (0.04)	
CPSTotal							16.9661* (1.71)
Premium	0.0492 (0.39)	-0.0018 (-0.01)	0.0409 (0.23)	-0.0027 (-0.02)	0.1096 (0.86)	0.1546 (0.87)	0.1175 (0.92)
RelativeSize	-7.9335** (-2.26)	-8.1015** (-2.31)	-2.2831 (-0.46)	-7.8718** (-2.24)	-7.9321** (-2.27)	-1.6432 (-0.33)	-8.0169** (-2.29)
TargetROA	-8.4310 (-0.93)	-6.9364 (-0.77)	-29.9794*** (-2.85)	-6.2174 (-0.69)	-6.0025 (-0.66)	-29.4933*** (-2.82)	-5.8661 (-0.65)
BidderROA	-0.6768 (-0.02)	2.6710 (0.07)	-26.9413 (-0.48)	0.8803 (0.02)	1.5782 (0.04)	-23.7803 (-0.43)	1.3148 (0.03)
BidderLEV	2.7410 (0.46)	3.0658 (0.52)	4.1402 (0.55)	2.7722 (0.47)	2.9936 (0.51)	4.0979 (0.55)	2.3647 (0.40)
Diversification	-22.5965** (-1.97)	-21.2315* (-1.85)	-36.8509** (-2.22)	-20.5692* (-1.79)	-20.5605* (-1.80)	-36.1652** (-2.18)	-20.0684* (-1.76)
HostileBid	17.3000 (1.33)	16.2212 (1.25)	21.7412 (1.18)	15.9195 (1.23)	17.2399 (1.32)	23.3964 (1.27)	16.8986 (1.29)
CashPayment	7.1381 (0.61)	5.4985 (0.47)	29.2478* (1.73)	5.4926 (0.47)	5.1264 (0.44)	30.2870* (1.80)	4.8885 (0.42)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT	RelPayShort	RelPayLong	RelPayTotal	CPSShort	CPSLong	CPSTotal
CompetingBid	2.1546 (0.17)	0.5586 (0.04)	11.0739 (0.66)	1.8185 (0.15)	0.8931 (0.07)	12.2770 (0.73)	1.0069 (0.08)
RevisedBid	-3.2471 (-0.26)	-5.7299 (-0.46)	-27.2512 (-1.57)	-5.7808 (-0.47)	-6.0228 (-0.49)	-28.5974 (-1.65)	-6.1667 (-0.50)
SuccessfulDeal	1.8359 (0.15)	2.8469 (0.23)	1.2559 (0.08)	2.5863 (0.21)	2.9838 (0.24)	2.1610 (0.14)	2.2521 (0.18)
BoardSize	-0.6438 (-0.30)	-0.3586 (-0.17)	-1.0339 (-0.34)	-0.4682 (-0.22)	-0.5941 (-0.28)	-0.9495 (-0.31)	-0.5098 (-0.24)
InsiderRatio	-11.8072 (-0.38)	-0.3538 (-0.01)	6.0071 (1.40)	4.0412 (0.12)	5.6623 (0.17)	5.9885 (1.44)	5.6308 (0.17)
CEODuality	-6.9182 (-0.39)	-6.7026 (-0.38)	-13.1128 (-0.51)	-6.2800 (-0.36)	-7.8580 (-0.45)	-11.1734 (-0.44)	-7.1827 (-0.41)
CEOTenure	-0.0015 (-0.67)	-0.0015 (-0.64)	-0.0005 (-0.16)	-0.0016 (-0.71)	-0.0016 (-0.70)	-0.0006 (-0.19)	-0.0018 (-0.77)
CEOOwnership	-0.1433 (-0.47)	-0.1142 (-0.37)	-0.1189 (-0.26)	-0.1042 (-0.34)	-0.1879 (-0.62)	-0.1749 (-0.39)	-0.1626 (-0.54)
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-4.4103 (-0.12)	-38.9379 (-1.10)	-1.5096 (-0.02)	-38.8282 (-1.11)	-46.5565 (-1.31)	-8.2981 (-0.11)	-42.7069 (-1.21)
<i>N</i>	423	423	246	423	423	246	423
<i>R</i> ²	0.1466	0.1461	0.1981	0.1474	0.1495	0.2009	0.1475

This table shows the results of the OLS regressions of bidder two-year post-takeover returns on market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 transactions announced from 2002 to 2015 between listed targets and bidders on the ASX. The buy-and-hold abnormal returns (*BHARs*), which is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Column (1) presents the regression against market optimism (*OPT*). Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure. Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). CEO relative pay is the ratio of CEO pay over the average pay of other directors on the board. CEO pay slice is the ratio of CEO pay over the total pay of all directors on the board. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity. Control variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.3.2.1 The Impact of Market Optimism on Bidder Long-Term Returns

Column (1) of Table 6.9 and Table 6.10 present the regression results when the one-year and two-year BHARs of bidders are regressed against market optimism and relevant control variables. The negative insignificant coefficient generated for the one-year *BHARs* variable in Table 6.9 implies that there is not enough evidence on the impact of market optimism on bidder one-year post-takeover performance. In Table 6.10, market correction is observed because the coefficient of *OPT* becomes negatively significant at the 10% level. This shows that conducting a deal in high market optimism may reduce the acquirer two-year post-takeover BHARs by 24.32%. The negative and significant impact of market optimism on bidder two-year post-takeover returns support *Hypothesis H_{3a}* that there is a negative association between market optimism and bidder long-term performance.

This finding is consistent with earlier studies, which reveal that deals undertaken in high market optimism are value-destroying (Bouwman et al., 2009; Croci et al., 2010). Bouwman et al. (2009) report that the two-year BHARs are significantly lower by -15.36% if the deals are conducted in high stock market optimism. Findings of the bidder long-term performance analysis support the *market misvaluation theory*. The market misvaluation theory proposes that high market optimism drives up bidder performance in the short term but market correction will happen in the long term, which results in significant losses for bidding firms (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Dong et al., 2006).

6.3.2.2 The Impact of CEO Pay Disparity on Bidder Long-term Returns

Columns (2) and (4) of Table 6.9 present the findings of models estimated on *RelPayShort* and *RelPayTotal* against one-year BHARs of acquiring firms. The coefficients of *RelPayShort* and *RelPayTotal* variables are positive, indicating that CEO relative pay in the short-term component and total compensation are related with a significant increase in BHARs over the one-year post-takeover period. Takeovers conducted by CEOs of acquiring firms who earn high *RelPayShort* (*RelPayTotal*) increase 12.61% (16.7%) in the one-year BHARs of bidders. The positive impact of *RelPayShort* (*RelPayTotal*) seems to be economically important at the 5% (1%) level.

The results of the *CPSShort* (*CPSTotal*) presented in Columns (5) and (7) exhibit a similar pattern. It is observed that transactions processed by CEOs who earn high *CPSShort* (*CPSTotal*) are associated with an increase in one-year BHARs of 10.07% (14%), which is statistically significant at the 10% (5%) level. However, the coefficients of the *RelPayLong* in Column (3) and *CPSLong* in Column (6) are insignificant, implying that there is not enough evidence on the impact of CEO relative pay and CEO pay slice in the long-term category on the acquiring firm one-year post-takeover BHARs.

Columns (2) to (7) of Table 6.10 summarise the multivariate analysis of bidder two-year post-takeover BHARs are taken into consideration. Compared to Table 6.9, the results presented in Table 6.10 depict a similar picture with an increase in the magnitude of the coefficients of CEO pay disparity variables across all models. Using the coefficients reported in Columns (2) and (4) in Table 6.9 as the benchmark, the positive coefficient in the *CPSShort* model increases by 5.89% at the 10% significant level while that in the *CPSTotal* model increases by 3.1%, significant at the 5% level. The impact of CEO pay slice on acquiring firm two years post-takeover performance seems to be more pronounced than in the one-year post-takeover period. The coefficient of the *CPSShort* reported in Column (5) increases by 9.33% in magnitude, statistically significant at the 5% level. The coefficient of *CPSTotal* rises by 3% compared to that in Table 6.9, remaining statistically significant. Findings in Columns (3) and (6) confirm that there is no evidence on the impact of *RelPayLong* and *CPSLong* on bidder performance over the two-year post-takeover period.

Results in this section show that CEOs who receive high pay disparity in the short-term category and in total pay contribute to better bidder performance in the one-year and two-year post-takeover period than their counterparts. This outcome is contrary to the findings in Hayward and Hambrick (1997) study. Hayward and Hambrick (1997) argue that CEO pay disparity is an indicator of CEO overconfidence. They find that CEO pay disparity relates to higher takeover premium, more severe agency issue and lower bidder post-takeover returns. However, Datta et al. (2001) document that CEO pay difference in the long-term component has a negative correlation with acquisition premium and a positive association with immediate

market response, as well as the three-year post-takeover BHARs of the acquiring firms. Datta et al. (2001) support the position that long-term pay “should have the effect of reducing the non-value-maximizing behaviour of acquiring managers” (Shleifer and Vishny, 1988, p. 19). Datta et al. (2001) argue that the type of managers’ pay, whether it is cash-based or equity-based, should be taken into consideration in assessing the impact of executive compensation on firm performance.

However, it is worth noting that including the equity-based component in the CEO pay package is a common practice in the US, whereas it is less popular in Australia (Hill et al., 2011; Matolcsy et al., 2012; Fernandes et al., 2013; Schultz et al., 2013). Schultz et al. (2013) report that in the Australian CEO pay package, the short-term component is approximately 78% whereas the long-term category accounts for only 22%. Similarly, these figures are recorded at 82% and 18% respectively by Fernandes et al. (2013) In contrast, stocks and options are far more heavily weighted at around 40% in CEO compensation in the US (Hill et al., 2011; Fernandes et al., 2013).

When limiting the sample to acquiring firms that have the long-term component in managers’ compensation, this research records a reduction of 41.84% (177 firms) in the sample. For listed firms on the ASX from 2001 to 2015 as reported in Section 5.3.3, firms with a long-term category in the executive compensation accounted for only 16.57% of the sample. This fact may be the explanation for the insignificant result found in the present study on the impact of CEO pay disparity in the long-term component. It further suggests that the short-term component and the total compensation are valid measures of CEO pay disparity for Australian firms. Findings in this section support the *efficient contracting theory* in that CEO compensation reflects the supply and demand of the labour market, and that it is structured to minimise the agency cost and to reward CEOs for their skills and performance (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979). As a result, managers of the acquiring firms who earn a high pay disparity make value-enhancing takeover decisions. Overall, findings in this section support *Hypothesis H_{3b}* that there is a positive association between CEO pay disparity and bidder long-term performance.

6.3.2.3 The Impact of Control Variables on Bidder Long-term Returns

Several control variables are found to be significantly related to bidder long-term returns. *RelativeSize* has a significant and negative influence on bidder returns in the two-year post-announcement period. It implies that the acquisition of large targets experience a performance decline in the long term (Anderson et al., 1994; Alexandridis et al., 2013). Managing synergies post the takeover is associated with size, which involves the physical, procedural, managerial and cultural combination of both parties (Shrivastava, 1986; Hayward, 2002). As a result, acquiring sizeable targets is associated with greater risks and the complexity of managing the large synergies.

The coefficient of *Diversification* is negative and significant in the two-year BHARs analysis. It suggests that the market recognises diversification as an indicator of agency problems and management complexity. In contrast, the market associates transactions between bidders and targets from the same industry with better managerial capability and potential synergy (Morck et al., 1990; Bhagat et al., 2005). Morck et al. (1990) and Shleifer and Vishny (2003) contend that managers may choose to acquire unrelated targets for personal incentive at the expense of shareholders. Further, managers of the acquiring firms may not have expertise in the target industry to run the business efficiently post the takeover (Jensen, 1986a). Morck et al. (1990) observe that unrelated diversification is penalised by the market and returns from takeovers are worse.

It is noted that the coefficient of *CashPayment* is positive in both the one-year and two-year BHARs analysis and significant in Table 6.9, suggesting that deals financed in cash produce better returns. Myers and Majluf (1984) claim that companies often issue shares when they appear to be overvalued. When market correction happens in the long term, shares of bidders who financed their deals by stock are revaluated downward, leading to lower returns to the firms (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). Conversely, bidders choose to finance the deals in cash if their shares are undervalued. In this way, acquiring firms benefit from share price recovery in the long term (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). Hence, takeover deals with cash-financing possibly generate

higher performance than stock-financed deals (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006).

The coefficient of *CompetingBid* is positive in both the one-year and two-year BHARs analysis and significant in Table 6.9, indicating that the win over rivals in transactions with multiple bidders is associated with better performance in the long term. A possible explanation for this might be that winning the competition equals a higher-value allocation of the combined resources of the winner and the target. Alternatively, it may be that the potential of large synergistic gains attracts multiple bidders (Bradley et al., 1988).

The coefficient of *CEODuality* is negative and significant in the two models in Table 6.9, suggesting that CEOs who are also the chairman may harm shareholder wealth. CEO entrenchment, weak board vigilance and the ineffectiveness of management monitoring might explain this correlation (Fama and Jensen, 1983; Pearce and Zahra, 1991; Roberts et al., 2005). The coefficient of *TargetROA* is negative and significant in the two models in Table 6.10. It indicates that the higher the performance of the target prior to announcement, the lower the two-year post-takeover returns of the acquiring firms. In other words, the acquiring firms perform better in the long term if they choose low-performing firms to acquire. Lang et al. (1989) and Servaes (1991) explain that target poor performance may be the result of a poor-performing management team. Therefore, bidders have a higher chance of improving the poorly managed targets post takeover to generate higher gains to shareholders.

Lastly, the coefficient of *Premium* is insignificant in all models, suggesting that takeover premium is not a determinant of bidder performance. This finding is consistent with Duong and Izan (2012) observation in the Australian market. The insignificant impact of premium on bidder performance suggests that the significantly higher premium paid by the acquiring firms in high market optimism or by a CEO who earns a high pay disparity (as discussed in Section 6.1) does not harm shareholder wealth. Hence this finding does not support the *managerial power theory*, which claims that as managers are affected by psychological bias or motivated by self-

interest, they tend to offer high premiums leading to value-destroying takeover transactions (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990; Hayward and Hambrick, 1997). Instead, findings in the premium and bidder performance analyses support the *efficient contracting theory*, which argues that CEOs who earn high pay disparity have superior skills in analysing the transactions (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979; Holmström, 1979; Grossman and Hart, 1983; Murphy and Zábojník, 2004). Based on such analysis, to lock in the deals, CEOs offer appropriate premiums, which, if necessary, may be higher than the premiums that CEOs with low pay discrepancy offer.

6.3.3 Summary: the Impact of Market Optimism and CEO Pay Disparity on Bidder Long-term Returns

In summary, findings on the impact of market optimism on bidder performance are consistent with earlier studies (Bouwman et al., 2009; Petmezas, 2009; Croci et al., 2010) while the investigation on CEO pay disparity provides contrasting evidence to prior findings in the US market (Hayward and Hambrick, 1997; Bebchuk et al., 2011). It has been found in this study that market optimism is positively related to announcement returns of acquiring firms and negatively related to the long-term performance over the two-year post-takeover period. These findings support the prediction of the *market misvaluation theory* that an optimistic market will drive up bidder performance in the short term but a correction will happen in the long term, which results in significant loss for the bidders (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006). Contrary to previous research in the US, which claims CEO pay disparity to be the indicator of agency issue, CEO hubris and entrenchment that deteriorates a firm's prospect, this research finds the evidence of the efficiency of contracting. Specifically, takeover deals conducted by CEOs with high CEO pay disparity receive an immediate unfavourable response from the market but they become lucrative to the acquirers in the long term. These findings support the *efficient contracting theory*, which claims that CEOs with high pay disparity generate long-term benefit to their organisations. The significant coefficients of several control variables (*RelativeSize*, *TargetROA*, *CashPayment*, *Diversification* and *CompetingBid*) on bidder returns provide evidence

that CEO skills in choosing appropriate targets and efficiently constructing the deals are critical to the acquirer performance. The higher returns generated by firms who pay their CEOs higher pay disparity indicates that CEOs are paid for their capacity and competence. It implies that CEOs with higher pay disparity have sufficient knowledge and skills to outperform the market to bring long-term benefit to their organisations though their decisions may not be reacted to positively by the market at the time of announcement.

Overall, findings in the bidder long-term returns analyses support *Hypothesis H_{3a}* that there is a negative association between market optimism and bidder long-term performance; and *Hypothesis H_{3b}* that there is a positive association between CEO pay disparity and bidder long-term performance.

6.4 INTERACTION EFFECTS

The literature has revealed that the aggregate market conditions and CEO decisions are important driving forces of takeover premium and bidder performance (Jensen and Meckling, 1976; Roll, 1986; Scharfstein and Stein, 1990; Shleifer and Vishny, 2003; Baker et al., 2004; Rhodes-Kropf and Viswanathan, 2004; Harford, 2005). The first driver emphasises the effect of investor sentiment whilst the second considers managerial behaviour. Prior sections show that takeover deals initiated in high market optimism feature higher bid premiums, higher announcement returns and lower performance in the long term. In contrast, takeovers transactions conducted by CEOs with higher pay disparity have higher takeover premiums, no difference or limited evidence on lower announcement returns but perform better in the long term.

This section reports the effects of the interaction between market optimism and CEO pay disparity to provide further evidence on their impact on bid premiums and returns to acquiring firms. *Hypotheses H_{4a}, H_{4b} and H_{4c}* on the association between CEO pay disparity on takeover premium, announcement returns and long-term returns to the acquiring firms when CEOs take action in different market conditions will be tested. The multivariate analyses on the interaction between market optimism and CEO pay disparity are reported in Table 6.11 for takeover premium, in Table 6.12 for

announcement returns and in Table 6.13 and Table 6.14 for one-year and two-year returns. The results interaction analyses are mapped against the interaction matrix specified in Section 3.2.3 and Figure 3.1.

6.4.1 The Interaction Effects on Takeover Premium

Table 6.11 summarises the results of the interaction analysis on takeover premium by applying Equation 4.15. Columns (1), (2) and (3) investigate the effects of the interaction between market optimism (*OPT*) and high and low CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) on takeover premium. Columns (4), (5) and (6) present the findings on the impact of the interaction between *OPT* and high and low CEO pay slice (*CPSShort*, *CPSLong* and *CPSTotal*). *HighOPT* (*LowOPT*) is dummy variable that takes the value of one if a month's actual detrended market P/E is higher (lower) than the expected value. *HighRelPay* (*LowRelPay*) and *HighCPS* (*LowCPS*) are dummy variables that take the value of one if the residual from the CEO pay disparity regression is positive (negative). The same set of control variables that capture target and bidder financial specifics, deal specifics and bidder corporate governance in Equation 4.7 are included in all columns.

It can be seen in Columns (1), (3), (4) and (6) of Table 6.11 that the coefficients of the interaction between *HighOPT* with high CEO pay disparity in the short-term pay and total pay (*HighRelPayShort*, *HighRelPayTotal*, *HighCPSShort*, *HighCPSTotal*) are significantly positive at the 5% level or better. It is evidenced that in high market optimism, CEOs with high pay disparity in the short-term component and total pay offer an economically significant higher premium ranging from 14.05% to 17.83% to target shareholders compared to that of the deal initiated under the alternative combinations of market condition and pay disparity. The coefficients of other possible interactions are insignificant. These findings support *Hypothesis H_{4a}* that CEO pay disparity is related differently to takeover premium in different market conditions. These results corroborate the analysis of the positive impact of market optimism and CEO pay disparity on takeover premium previously discussed in Section 6.1.

Results reported in Table 6.11 seems to align with the (A) *Quadrant* in Figure 3.1 with the implication to the *managerial power theory*. It may signify that if high CEO pay disparity is associated with agency issue, judgement bias and managerial dominance, CEOs may find it is encouraging to undertake M&A transactions in high market optimism. Hence, they are willing to pay a higher price to pursue their interest, and their managerial power allows them to impose their private incentive on the board (Jensen, 1986a; Roll, 1986; Scharfstein and Stein, 1990; Hayward and Hambrick, 1997). Nonetheless, the possible implication of the *efficient contracting theory* should not be overlooked. If CEO pay disparity is an indicator of the optimal pay package, CEOs with a high pay disparity use their superior skills and efforts to analyse the transaction and offer a proper price for targets. This situation may fit in the (A) *Quadrant* in Figure 3.1 when CEOs identify that high premiums are necessary for the offer to be accepted, which ultimately serves their aim of maximising the firm value. The above possible explanations suggest that the interaction analyses on takeover premium do not provide enough evidence to conclude whether the managerial power theory or the efficient contracting theory is supported. Further investigation on the interaction impacts on returns to acquirers is needed before arriving at a conclusion.

Table 6.11 Interaction Analysis on Takeover Premium

	(1) OPT#RelPayShort	(2) OPT#RelPayLong	(3) OPT#RelPayTotal	(4) OPT#CPSShort	(5) OPT#CPSLong	(6) OPT#CPSTotal
LowOPT#LowRelPayShort	0.0000 (.)					
LowOPT#HighRelPayShort	6.7286 (1.16)					
HighOPT#LowRelPayShort	8.3194 (1.40)					
HighOPT#HighRelPayShort	17.8270*** (2.84)					
LowOPT#LowRelPayLong		0.0000 (.)				
LowOPT#HighRelPayLong		-12.2688 (-1.63)				
HighOPT#LowRelPayLong		6.9054 (0.86)				
HighOPT#HighRelPayLong		4.9194 (0.59)				
LowOPT#LowRelPayTotal			0.0000 (.)			
LowOPT#HighRelPayTotal			5.3033 (0.91)			
HighOPT#LowRelPayTotal			7.1362 (1.14)			
HighOPT#HighRelPayTotal			16.8984*** (2.71)			
LowOPT#LowCPSShort				0.0000 (.)		
LowOPT#HighCPSShort				5.5128 (0.95)		
HighOPT#LowCPSShort				9.2951 (1.53)		

	(1)	(2)	(3)	(4)	(5)	(6)
	OPT#RelPayShort	OPT#RelPayLong	OPT#RelPayTotal	OPT#CPSShort	OPT#CPSLong	OPT#CPSTotal
HighOPT#HighCPSShort				15.4505**		
				(2.46)		
LowOPT#LowCPSLong					0.0000	
					(.)	
LowOPT#HighCPSLong					-3.5624	
					(-0.48)	
HighOPT#LowCPSLong					6.9944	
					(0.82)	
HighOPT#HighCPSLong					11.0276	
					(1.34)	
LowOPT#LowCPSTotal						0.0000
						(.)
LowOPT#HighCPSTotal						2.5061
						(0.43)
HighOPT#LowCPSTotal						7.6250
						(1.21)
HighOPT#HighCPSTotal						14.0540**
						(2.24)
Financial Specifics	Yes	Yes	Yes	Yes	Yes	Yes
Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Bidder Cor. Governance	Yes	Yes	Yes	Yes	Yes	Yes
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
_cons	23.8612*	40.3269	25.3166*	24.6662*	36.5529	26.8465*
	(1.71)	(1.40)	(1.83)	(1.75)	(1.27)	(1.92)
<i>N</i>	423	246	423	423	246	423
<i>R</i> ²	0.1609	0.2358	0.1602	0.1557	0.2264	0.1546

This table shows the results of the OLS regressions of takeover premium on the interaction between market optimism and CEO pay disparity, bidder and target financial specifics, deal characteristics and bidders corporate governance. The sample consists of 423 transactions announced from 2002 to 2015 between listed targets and bidders on the ASX. *Premium* is the ratio of the offer price, minus the target share price 60 days prior to the announcement, divided by pre-takeover share price, expressed in percentage. Columns (1) to (3) present the regressions against the interaction between market optimism (*OPT*) with CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*). Columns (4) to (6) present the regressions against the interaction between *OPT* with CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). *HighOPT* (*LowOPT*) is dummy variable that takes the value of one if a month's actual detrended market P/E is higher (lower) than the expected value. *HighRelPay* (*LowRelPay*) and *HighCPS* (*LowCPS*) are dummy variables that take the value of one if the residual from the CEO pay disparity regression is positive (negative). *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.4.2 The Interaction Effects on Bidder Announcement Returns

Table 6.12 presents results of the multivariate regressions specified in Equation 4.15 whereby bidder announcement returns over the three days surrounding announcement (*CARs*) are regressed against the interaction between market optimism and CEO pay disparity. The interaction effects of *OPT* and *RelPayShort*, *RelPayLong* and *RelPayTotal* are in Columns (2), (3) and (4). Similar analyses are reported on the interaction between *OPT* and *RelPayShort*, *RelPayLong* and *RelPayTotal* in Columns (4), (5) and (6). Control variables including takeover premium, target and bidder financial specifics, deal specifics and bidder corporate governance in the Equation 4.14 are included in all specifications.

Table 6.12 reports very few cases in which the combination effects of market condition and CEO pay disparity are significant. The possible reason is the insignificant impact of CEO pay disparity on bidder announcement returns as discussed in Section 6.2.2 makes the interaction effect to be less pronounced. Interestingly, the exceptions are the positive and significant coefficients of *HighOPT-HighRelPayLong* and *HighOPT-HighCPSLong* as reported in Columns (2) and (5). This shows that deals conducted in high market optimism and by CEOs who receive a high *RelPayLong* (*CPSLong*) generate 3.25% (2.63%) higher returns than that of deals announced under the low market optimism and low CEO pay disparity circumstance. This finding indicates that in high market optimism and when the interest agents and principals are better aligned, CEOs are able to identify good opportunities to take advantage of the market sentiment. As a result, they process takeover transactions that generate better announcement returns than their counterparts.

Referring to the interaction matrix in Figure 3.1, these significant and positive interaction effects are likely to fit in the (A) *Quadrant* in which high CEO pay disparity is to reward CEOs for their skills and efforts, and to align the interest of the agent and principal. As a result, CEOs with high pay disparity make value-enhancing decisions. Under the *efficient contracting theory*, the positive effect of the interaction between high market optimism and high CEO pay disparity on bidder announcement returns is supported. However, high CEO pay disparity as a product of the agency issue as

claimed by the *managerial power theory* can also be mapped in the (A) *Quadrant* of Figure 3.1 when high market optimism is the result of the market misvaluation. In this case, CEOs who earn high pay disparity have the ability to imprint their personal mark on the board to pursue their own interest. Despite the reason to merge not being fundamental, it is still possible that the market sentiment results in positive returns to bidders surrounding announcement. Consequently, more evidence on the interaction effects on bidder long-term performance is required to decide which theory is supported.

Overall, although the interactions effects on announcement returns to bidders are significant in only two cases (*HighOPT-HighRelPayLong* and *HighOPT-HighCPSLong*), the coefficients of the majority of the possible combinations are insignificant. Therefore, it can be concluded that there is weak evidence to support *Hypothesis H_{4b}* that CEO pay disparity is related differently to announcement returns of bidders in different market conditions.

Table 6.12 Interaction Analysis on Announcement Returns

	(1)	(2)	(3)	(4)	(5)	(6)
	OPT#RelPayShort	OPT#RelPayLong	OPT#RelPayTotal	OPT#CPSShort	OPT#CPSLong	OPT#CPSTotal
LowOPT#LowRelPayShort	0.0000 (.)					
LowOPT#HighRelPayShort	-1.8166 (-1.79)					
HighOPT#LowRelPayShort	0.3646 (0.35)					
HighOPT#HighRelPayShort	1.2947 (1.17)					
LowOPT#LowRelPayLong		0.0000 (.)				
LowOPT#HighRelPayLong		1.7972 (1.31)				
HighOPT#LowRelPayLong		2.6530 (1.83)				
HighOPT#HighRelPayLong		3.2462** (2.15)				
LowOPT#LowRelPayTotal			0.0000 (.)			
LowOPT#HighRelPayTotal			-1.2542 (-1.23)			
HighOPT#LowRelPayTotal			0.8138 (0.74)			
HighOPT#HighRelPayTotal			1.0388 (0.94)			
LowOPT#LowCPSShort				0.0000 (.)		
LowOPT#HighCPSShort				-0.6972 (-0.68)		
HighOPT#LowCPSShort				1.2385 (1.17)		

	(1)	(2)	(3)	(4)	(5)	(6)
	OPT#RelPayShort	OPT#RelPayLong	OPT#RelPayTotal	OPT#CPSShort	OPT#CPSLong	OPT#CPSTotal
HighOPT#HighCPSShort				1.1688 (1.06)		
LowOPT#LowCPSLong					0.0000 (.)	
LowOPT#HighCPSLong					0.5618 (0.42)	
HighOPT#LowCPSLong					2.0375 (1.31)	
HighOPT#HighCPSLong					2.6277* (1.76)	
LowOPT#LowCPSTotal						0.0000 (.)
LowOPT#HighCPSTotal						-0.7442 (-0.73)
HighOPT#LowCPSTotal						1.5184 (1.38)
HighOPT#HighCPSTotal						0.8312 (0.75)
Financial Specifics	Yes	Yes	Yes	Yes	Yes	Yes
Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Bidder Cor. Governance	Yes	Yes	Yes	Yes	Yes	Yes
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-5.5549** (-2.18)	-10.4528* (-1.94)	-5.7779** (-2.27)	-5.9640** (-2.31)	-9.3928* (-1.74)	-5.8441** (-2.28)
N	423	246	423	423	246	423
R ²	0.1403	0.2151	0.1338	0.1312	0.2091	0.1325

This table shows the results of the OLS regressions of bidder announcement returns on the interaction between market optimism and CEO pay disparity, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 transactions announced from 2002 to 2015 between listed targets and bidders on the ASX. Announcement return is the three-day cumulative abnormal returns (CARs) around the announcement date, calculated against the All Ordinaries Index using the modified market model. Columns (1) to (3) present the regressions against the interaction between market optimism (OPT) with CEO relative pay (RelPayShort, RelPayLong and RelPayTotal). Columns (4) to (6) present the regressions against the interaction between OPT with CEO pay slice (CPSPayShort, CPSPayLong and CPSPayTotal). HighOPT (LowOPT) is dummy variable that takes the value of one if a month's actual detrended market P/E is higher (lower) than the expected value. HighRelPay (LowRelPay) and HighCPS (LowCPS) are dummy variables that take the value of one if the residual from the CEO pay disparity regression is positive (negative). *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.4.3 The Interaction Effects on Bidder Long-term Returns

This section discusses the effects of the interaction between market optimism and difference measures of CEO pay disparity on acquiring firm long-term performance based on the Equation 4.15. The same set of control variables in Equation 4.14 are included. The results are presented in Table 6.13 for one-year post-takeover BHARs and in Table 6.14 for two-year post-takeover BHARs. In each table, Columns (2), (3) and (4) inspect the interaction effects between *OPT* and *RelPayShort*, *RelPayLong* and *RelPayTotal*, and Columns (4), (5) and (6) study the interaction between *OPT* and *RelPayShort*, *RelPayLong* and *RelPayTotal*.

It is noticeable that no significant coefficient correlation is reported in Table 6.13, which may be attributable to the insignificant impact of market optimism on BHARs to acquiring firms within the one-year post-takeover period as reported in Table 6.9. It maybe that the negative and insignificant correlation of *OPT* on the one-year BHARs has cancelled the positive and significant impact of CEO pay disparity and makes the effect of the interaction between them to be statistically insignificant.

In Table 6.14, when high market optimism is stimulated with low CEO pay disparity in the short-term category and total pay, a significant decline in the two-year BHARs are detected. Columns (1), (3), (4) and (6) report the negative coefficients of the interaction between *HighOPT* with *LowRelPayShort*, *LowRelPayTotal*, *LowCPSShort* and *LowCPSTotal* respectively. Using the combination of low optimism-low CEO pay disparity in each column as benchmark, bidders suffer lower BHARs within the two-year post-takeover period, ranging from -35.23% to -28% , significant at the conventional level. It indicates that takeovers conducted in high market optimism and by CEOs who earn low pay disparity in the short-term component and the total pay are associated with significant underperformance of the acquiring firms.

Mapping with the interaction matrix in Figure 3.1, the above results fit in the (C) *Quadrant*. As discussed in Section 3.2.3, the lower long-term returns to acquiring firms from takeovers announced in high market optimism and by CEOs who are paid a low pay disparity can be explained by the *efficient contracting theory*. Particularly, if CEO

pay disparity reflects CEO skills and efforts, it is highly possible that low-performing CEOs may not be able to pick up a “good” target, thus ultimately underperform their counterparts who are rewarded with higher pay for their superior capacities.

Interestingly, Column (2) provides further support for the *efficient contracting theory*. It reports a positive and significant coefficient of the interaction between *LowOPT* and *HighRelPayLong* on bidder two years post-takeover BHARs. Taking the case of *LowOPT-LowRelPayLong* as benchmark, takeover deals conducted in low market optimism and by CEOs who receive high pay disparity in the long-term component generate an increase of 32.43% abnormal returns, economically significant at the 10% level. This combination fits in the (B) *Quadrant* of Figure 3.1, which is explained by the efficient contracting theory, in that even in unfavourable market conditions, superior CEOs are able to analyse the environment and identify profitable opportunities to generate gains to shareholders in the long term. Overall, these findings support *Hypothesis H_{4c}* that CEO pay disparity is related differently to bidder long-term returns in different market conditions. Moreover, the evidence to support the efficient contracting theory seems to carry more weight than the managerial power theory based on the sample of the present study.

6.4.4 Summary: The Interaction Effects

In summary, the interaction analysis finds that in high market optimism, CEOs who receive high pay disparity in the short-term component and total pay offer an economically significant higher premium. These findings support *Hypothesis H_{4a}* that CEO pay disparity is related differently to takeover premium in different market conditions. The interaction effects on bidder announcement returns are statistically insignificant in most circumstances except in the high optimism-high long-term pay disparity. These findings provide weak evidence for *Hypothesis H_{4b}* that CEO pay disparity is related differently to announcement returns of bidders in different market conditions. Regarding bidder long-term returns analysis, the negative impact of the interaction between high optimism-low pay disparity in the short-term component and total pay, and the positive impact of the low optimism-high pay disparity in the long-term component support *Hypothesis H_{4c}* that CEO pay disparity is related differently to bidder long-term returns in different market conditions.

Table 6.13 Interaction Analysis on One-year Post-takeover BHARs

	(1)	(2)	(3)	(4)	(5)	(6)
	OPT#RelPayShort	OPT#RelPayLong	OPT#RelPayTotal	OPT#CPSShort	OPT#CPSLong	OPT#CPSTotal
LowOPT#LowRelPayShort	0.0000					
	(.)					
LowOPT#HighRelPayShort	7.8182					
	(0.90)					
HighOPT#LowRelPayShort	-9.8813					
	(-1.11)					
HighOPT#HighRelPayShort	6.7308					
	(0.71)					
LowOPT#LowRelPayLong		0.0000				
		(.)				
LowOPT#HighRelPayLong		16.4230				
		(1.32)				
HighOPT#LowRelPayLong		20.5593				
		(1.57)				
HighOPT#HighRelPayLong		9.5304				
		(0.70)				
LowOPT#LowRelPayTotal			0.0000			
			(.)			
LowOPT#HighRelPayTotal			15.6645			
			(1.81)			
HighOPT#LowRelPayTotal			-8.2139			
			(-0.88)			
HighOPT#HighRelPayTotal			10.3041			
			(1.10)			
LowOPT#LowCPSShort				0.0000		
				(.)		
LowOPT#HighCPSShort				2.0715		
				(0.24)		
HighOPT#LowCPSShort				-12.1633		
				(-1.35)		

	(1)	(2)	(3)	(4)	(5)	(6)
	OPT#RelPayShort	OPT#RelPayLong	OPT#RelPayTotal	OPT#CPSShort	OPT#CPSLong	OPT#CPSTotal
HighOPT#HighCPSShort				4.0268 (0.43)		
LowOPT#LowCPSLong					0.0000 (.)	
LowOPT#HighCPSLong					16.2870 (1.34)	
HighOPT#LowCPSLong					23.8339 (1.71)	
HighOPT#HighCPSLong					12.9951 (0.97)	
LowOPT#LowCPSTotal						0.0000 (.)
LowOPT#HighCPSTotal						8.7946 (1.01)
HighOPT#LowCPSTotal						-10.9664 (-1.17)
HighOPT#HighCPSTotal						7.3908 (0.79)
Financial Specifics	Yes	Yes	Yes	Yes	Yes	Yes
Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Bidder Cor. Governance	Yes	Yes	Yes	Yes	Yes	Yes
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-24.8281 (-1.13)	-12.9536 (-0.27)	-28.5250 (-1.32)	-23.0890 (-1.04)	-15.9533 (-0.32)	-26.8338 (-1.23)
<i>N</i>	423	246	423	423	246	423
<i>R</i> ²	0.1326	0.1833	0.1400	0.1317	0.1823	0.1360

This table shows the results of the OLS regressions of bidder one-year post-takeover returns on the interaction between market optimism and CEO pay disparity, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 transactions announced from 2002 to 2015 between listed targets and bidders on the ASX. The buy-and-hold abnormal returns (*BHARs*), which is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Columns (1) to (3) present the regressions against the interaction between market optimism (*OPT*) with CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*). Columns (4) to (6) present the regressions against the interaction between *OPT* with CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). *HighOPT* (*LowOPT*) is dummy variable that takes the value of one if a month's actual detrended market P/E is higher (lower) than the expected value. *HighRelPay* (*LowRelPay*) and *HighCPS* (*LowCPS*) are dummy variables that take the value of one if the residual from the CEO pay disparity regression is positive (negative). *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6.14 Interaction Analysis on Two-year Post-takeover BHARs

	(1) OPT#RelPayShort	(2) OPT#RelPayLong	(3) OPT#RelPayTotal	(4) OPT#CPSShort	(5) OPT#CPSLong	(6) OPT#CPSTotal
LowOPT#LowRelPayShort	0.0000 (.)					
LowOPT#HighRelPayShort	15.1907 (1.04)					
HighOPT#LowRelPayShort	-28.0068* (-1.88)					
HighOPT#HighRelPayShort	-5.8355 (-0.37)					
LowOPT#LowRelPayLong		0.0000 (.)				
LowOPT#HighRelPayLong		32.4321* (1.69)				
HighOPT#LowRelPayLong		-0.0492 (-0.00)				
HighOPT#HighRelPayLong		-21.5201 (-1.02)				
LowOPT#LowRelPayTotal			0.0000 (.)			
LowOPT#HighRelPayTotal			10.1106 (0.70)			
HighOPT#LowRelPayTotal			-35.2346** (-2.26)			
HighOPT#HighRelPayTotal			-5.5028 (-0.35)			
LowOPT#LowCPSShort				0.0000 (.)		
LowOPT#HighCPSShort				15.1394 (1.04)		
HighOPT#LowCPSShort				-29.4541* (-1.95)		

	(1)	(2)	(3)	(4)	(5)	(6)
	OPT#RelPayShort	OPT#RelPayLong	OPT#RelPayTotal	OPT#CPSShort	OPT#CPSLong	OPT#CPSTotal
HighOPT#HighCPSShort				-5.6510 (-0.36)		
LowOPT#LowCPSLong					0.0000 (.)	
LowOPT#HighCPSLong					17.9230 (0.95)	
HighOPT#LowCPSLong					-7.6376 (-0.35)	
HighOPT#HighCPSLong					-19.8889 (-0.95)	
LowOPT#LowCPSTotal						0.0000 (.)
LowOPT#HighCPSTotal						13.0231 (0.89)
HighOPT#LowCPSTotal						-29.3243* (-1.87)
HighOPT#HighCPSTotal						-8.9333 (-0.57)
Financial Specifics	Yes	Yes	Yes	Yes	Yes	Yes
Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Bidder Cor. Governance	Yes	Yes	Yes	Yes	Yes	Yes
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-19.2041 (-0.52)	-2.1439 (-0.03)	-15.8867 (-0.44)	-25.6958 (-0.70)	0.5008 (0.01)	-21.7647 (-0.59)
<i>N</i>	423	246	423	423	246	423
<i>R</i> ²	0.1552	0.2232	0.1591	0.1592	0.2142	0.1566

This table shows the results of the OLS regressions of bidder two-year post-takeover returns on the interaction between market optimism and CEO pay disparity, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 transactions announced from 2002 to 2015 between listed targets and bidders on the ASX. The buy-and-hold abnormal returns (*BHARs*), which is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Columns (1) to (3) present the regressions against the interaction between market optimism (*OPT*) with CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*). Columns (4) to (6) present the regressions against the interaction between *OPT* with CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). *HighOPT* (*LowOPT*) is dummy variable that takes the value of one if a month's actual detrended market P/E is higher (lower) than the expected value. *HighRelPay* (*LowRelPay*) and *HighCPS* (*LowCPS*) are dummy variables that take the value of one if the residual from the CEO pay disparity regression is positive (negative). *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.5 ROBUSTNESS TESTS

This section reports a number of robustness tests. Firstly, the issue of potential endogeneity of the probabilities of firms making takeover bids relating to sample selection bias will be addressed. Secondly, the main specifications will be replicated with different measures of variables.

6.5.1 Robustness Tests on Potential Sample Selection Bias

Takeover literature has discussed the potential sample selection bias in analysing M&A transactions (Grinstein and Hribar, 2004; H. K. Baker et al., 2012; Harford et al., 2012; Akhtar, 2016; Bugeja et al., 2016). The potential sample selection bias is likely to exist because the acquiring firms are not randomly chosen from the general population. Takeover decisions are non-random in nature and would firstly depend on the firm specifics. Therefore, an additional analysis using the Heckman (1979) two-stage model approach is conducted to address the potential selection bias of firms not randomly making takeover bids as well as the potential omitted variables issue. Following the literature (Grinstein and Hribar, 2004; H. K. Baker et al., 2012; Akhtar, 2016), in the first stage, the probability of firms making takeover decisions is estimated by running a probit regression on the sample of 10,144 firms listed on the ASX between 2002 and 2015. The dependent variable is a dummy variable that equals one if the firm makes any takeover transactions in the sampling period and zero otherwise. Following Akhtar (2016) and Andrade and Stafford (2004), three groups of independent variables are taken into account. The first group is firm financial specifics, which includes *TobinsQ*, *LogMrkCap*, *CashFlow*, *Leverage*, *ROE* and *CapacityUtilisation*. The second group represent firm corporate governance practice, which includes *BoardSize*, *InsiderRatio* and *CEODuality*. The third group is the industry specifics, which consists of *IndustryTobinsQ*, *IndustryCashFlow*, *IndustryShock* and *IndustryConcentration*. Industry and year effects are also controlled. Definition of variables and sources of information are provided in Appendix F. The results of the first-stage model (the probit model) are reported in Table 6.15.

Table 6.15 The Probability of Firms Making Takeover Decisions

	(1)	(2)	(3)
TobinsQ	-0.0251 *** (-3.94)	-0.0325 *** (-4.91)	-0.0347 *** (-5.06)
LogMrkCap	0.1352 ** (20.26)	0.1681 *** (19.26)	0.1691 *** (19.08)
CashFlow	0.0006 (1.43)	0.0006 (1.30)	0.0004 (0.92)
Leverage	-0.0758 (-1.28)	-0.0343 (-0.57)	-0.0483 (-0.79)
ROE	0.0309 ** (2.47)	0.0239 * (1.88)	0.0226 * (1.78)
CapacityUtilisation	-0.0390 * (-1.91)	-0.0391 * (-1.90)	-0.0354 * (-1.72)
BoardSize		-0.0454 *** (-5.50)	-0.0456 *** (-5.49)
InsiderRatio		0.2037 ** (2.13)	0.2031 ** (2.12)
CEODuality		-0.1028 ** (-2.25)	-0.0999 ** (-2.18)
IndustryTobinsQ			0.1259 *** (3.36)
IndustryCashFlow			0.2190 (0.83)
IndustryShock			0.4384 *** (4.63)
IndustryConcentration			-0.0016 (-0.23)
Ind. Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
_cons	-2.2647*** (-27.79)	-2.4111*** (-23.94)	-2.4320*** (-9.46)
<i>N</i>	10,144	10,144	10,144
pseudo <i>R</i> ²	0.0471	0.0511	0.0535

This table reports the results of the probit regressions of the probability of firms making takeover decisions on firm financial specifics, corporate governance and industry specifics. The sample consists of 10,144 companies listed on the ASX from 2002 to 2015. The dependent variable is a dummy variable which equals one if the firm makes any takeover transactions in the sampling period and zero otherwise. *TobinsQ* is market value divided by the book value of assets. *LogMrkCap* is the logarithm of the firms' market capitalisation. *CashFlow* is net operating cash flow from operations minus capital expenditure scaled by total assets. *Leverage* is total debt divided by total asset. *ROE* is earnings before interest, depreciation, and amortisation, divided by equity. *CapacityUtilisation* is the deviation of firm's ratio of sales to book assets from the industry median. *BoardSize* is the number of directors on the board. *InsiderRatio* is the ratio of the number of executive directors on the board to total directors. *CEODuality* is dummy variable that takes the value of one if the CEO also acts as the chairman, and take the value of zero otherwise. *IndustryTobinsQ* is the ratio of the industry's total market value of assets to its total book value of assets. *IndustryCashFlow* is the sum of cash flow across firms in the industry. *IndustryShock* is the absolute value of the deviation of industry one-year sales growth from the mean sales growth for the industry. *IndustryConcentration* is the natural logarithm of the sum of squared market shares (based on sales) calculated each year for each industry. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

From the first-stage model, the self-selection parameter, *lambda* (known as the Inverse Mills Ratio) is calculated. The self-selection parameter is then added to the Heckman second-stage regressions to control for the unobservable factors related to the sample selection. The main regression models reported in Table 6.3 on takeover premium, Table 6.6 on bidder announcement returns, Table 6.9 on bidder one-year

post-takeover returns, and Table 6.10 on bidder two years post-takeover returns are replicated. The purpose of this replication is to investigate the possibility for findings in the previous sections to be sensitive to the potential sample selection bias, which may decide the premium acquiring firms offer or the announcement and long-term returns they generate.

Table 6.16, Table 6.17, Table 6.18 and Table 6.19 report the results when takeover premium and bidder returns are regressed against given explanatory variables and the additional parameter *lambda* or the Inverse Mills Ratio (denoted as *IMR*) estimated in the first-stage Heckman model. It can be seen that results remain robust with the inclusion of the *IMR* variable. More specifically, the coefficient of *IMR* variable in the premium model, CARs model and two-year BHARs model are mainly negative and insignificant, leading to marginal change in coefficients of most independent variables and control variables. Interestingly, the exception is in Column (3) of Table 6.16 with the coefficient of *RelPayLong* becoming significant, indicating that CEO pay disparity in the long-term category is negatively related to takeover premium. This result strengthens the finding in Table 6.3. In the one-year BHARs model, the negative and significant coefficients of *IMR* are detected and the coefficient of *RelPayShort* becomes insignificant. However, the effect of *RelPayTotal* and *CPSTotal* remain positive and significant.

Overall, the Heckman (1979) two-stage analysis suggests that the main findings on the impact of market optimism and CEO pay disparity previously reported remain robust after controlling for sample selection bias.

Table 6.16 Takeover Premium: Sample Selection Check

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
OPT	10.6442* (1.68)						
RelPayShort		9.8691** (2.06)					
RelPayLong			-10.1754* (-1.76)				
RelPayTotal				11.1322** (2.33)			
CPSShort					12.4456*** (2.67)		
CPSLong						-1.6880 (-0.30)	
CPSTotal							12.1822*** (2.60)
IMR	-1.2355 (-0.65)	-1.6558 (-0.88)	-1.9701 (-0.84)	-1.8696 (-0.99)	-1.2769 (-0.69)	-1.3529 (-0.60)	-1.4480 (-0.78)
RelativeSize	-2.0505 (-1.25)	-1.9977 (-1.22)	-4.6357** (-2.09)	-1.8008 (-1.10)	-0.6554 (-0.41)	-3.0066 (-1.40)	-0.6147 (-0.38)
TargetROA	-1.3744 (-0.32)	-1.1138 (-0.26)	-3.2721 (-0.71)	-0.6939 (-0.16)	-4.7601 (-1.13)	-5.9311 (-1.34)	-4.8674 (-1.15)
BidderROA	-6.8495 (-0.33)	-1.1292 (-0.05)	-25.2104 (-1.00)	-4.9153 (-0.24)	-25.0058 (-1.23)	-34.1456 (-1.40)	-27.8657 (-1.37)
BidderLEV	-1.9218 (-0.72)	-1.9802 (-0.74)	-4.9837* (-1.66)	-2.2299 (-0.84)	-1.2415 (-0.47)	-3.2942 (-1.13)	-1.7216 (-0.66)
Diversification	-15.0774*** (-2.69)	-16.3670*** (-2.96)	-13.8924* (-1.87)	-15.9269*** (-2.88)	-10.6300* (-1.96)	-8.7983 (-1.21)	-9.8074* (-1.80)
HostileBid	-5.5676 (-1.06)	-6.5387 (-1.25)	-14.8266** (-2.09)	-6.4621 (-1.24)	-11.1839** (-2.19)	-14.7247** (-2.14)	-11.3817** (-2.22)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT	RelPayShort	RelPayLong	RelPayTotal	CPSShort	CPSLong	CPSTotal
CashPayment	4.7636 (0.88)	5.0889 (0.94)	-10.9939 (-1.50)	5.0103 (0.93)	3.3902 (0.64)	-9.0876 (-1.29)	3.0399 (0.57)
CompetingBid	-2.4060 (-0.41)	-1.6714 (-0.29)	-4.7482 (-0.64)	-1.0573 (-0.18)	-2.0779 (-0.36)	-6.9290 (-0.97)	-2.2823 (-0.40)
RevisedBid	6.0616 (1.07)	6.2384 (1.10)	15.3947** (2.14)	6.5772 (1.17)	4.1052 (0.74)	12.7421* (1.82)	4.4471 (0.80)
BoardSize	-0.4830 (-0.47)	-0.3952 (-0.38)	0.2582 (0.20)	-0.3971 (-0.38)	-0.8197 (-0.81)	0.1126 (0.09)	-0.6931 (-0.68)
InsiderRatio	2.9957 (0.17)	10.9665 (0.63)	9.5191 (0.42)	13.9779 (0.79)	9.2644 (0.53)	20.3694 (0.96)	11.5056 (0.65)
CEODuality	-2.6073 (-0.30)	-1.9704 (-0.23)	-6.5145 (-0.55)	-1.1958 (-0.14)	2.7495 (0.32)	-13.7637 (-1.23)	2.9510 (0.35)
CEOTenure	0.0007 (0.66)	0.0008 (0.77)	0.0004 (0.34)	0.0007 (0.69)	0.0010 (0.99)	0.0008 (0.68)	0.0009 (0.89)
CEOOwnership	0.1370 (1.02)	0.1959 (1.45)	0.4185** (2.29)	0.2110 (1.56)	0.1451 (1.11)	0.4108** (2.32)	0.1628 (1.24)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	40.6380** (2.58)	41.0912*** (2.69)	56.6341** (2.09)	41.0215*** (2.72)	42.9634*** (2.88)	66.2607** (2.52)	44.2515*** (2.98)
<i>N</i>	423	423	246	423	423	246	423
<i>R</i> ²	0.1915	0.1958	0.3163	0.1995	0.2324	0.3568	0.2313

This table shows the results of the Heckman (1979) second-stage OLS regressions of takeover premium on the self-selection parameter, market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. The self-selection parameter (*IMR*) is derived from the Heckman (1979) first-stage probit regression of the probability of firms making takeover decisions on financial specifics, corporate governance practice and industry specifics. *Premium* is the ratio of the offer price, minus the target share price 60 days prior to the announcement, divided by pre-takeover share price, expressed in percentage. Column (1) presents the regression against market optimism (*OPT*). Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). Variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6.17 CAR [-1, 1]: Sample Selection Check

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
OPT	1.9588* (1.75)						
RelPayShort		-1.1466 (-1.33)					
RelPayLong			0.5105 (0.45)				
RelPayTotal				-0.9607 (-1.12)			
CPSShort					-0.5776 (-0.68)		
CPSLong						0.4470 (0.39)	
CPSTotal							-0.9336 (-1.09)
IMR	-0.1095 (-0.33)	-0.0923 (-0.27)	0.1597 (0.35)	-0.0827 (-0.24)	-0.1117 (-0.33)	0.1374 (0.30)	-0.0898 (-0.27)
Premium	0.0072 (0.66)	0.0111 (1.00)	0.0359** (2.17)	0.0109 (0.98)	0.0099 (0.89)	0.0350** (2.14)	0.0103 (0.93)
RelativeSize	0.2078 (0.70)	0.2363 (0.80)	0.3403 (0.77)	0.2201 (0.74)	0.2267 (0.77)	0.3561 (0.81)	0.2233 (0.76)
TargetROA	-0.6439 (-0.84)	-0.9021 (-1.18)	-0.5096 (-0.57)	-0.9064 (-1.18)	-0.8556 (-1.11)	-0.4633 (-0.52)	-0.8926 (-1.16)
BidderROA	-4.4263 (-1.21)	-5.1469 (-1.39)	-5.7971 (-1.18)	-4.6445 (-1.26)	-4.7218 (-1.27)	-5.7887 (-1.18)	-4.6656 (-1.26)
BidderLEV	0.3731 (0.79)	0.3435 (0.72)	0.4445 (0.76)	0.3659 (0.77)	0.3488 (0.73)	0.4362 (0.74)	0.3866 (0.81)
Diversification	0.1678 (0.16)	0.0178 (0.02)	0.9995 (0.68)	-0.0121 (-0.01)	0.0229 (0.02)	1.0165 (0.69)	-0.0173 (-0.02)
	0.5525	0.4969	1.8966	0.5028	0.4747	1.9002	0.5218

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
HostileBid	(0.52)	(0.47)	(1.26)	(0.47)	(0.44)	(1.27)	(0.49)
CashPayment	0.4733 (0.49)	0.6869 (0.71)	0.9481 (0.66)	0.6724 (0.70)	0.6462 (0.67)	0.9031 (0.64)	0.6877 (0.71)
CompetingBid	0.3965 (0.38)	0.3014 (0.29)	1.7100 (1.17)	0.2790 (0.26)	0.3519 (0.33)	1.6815 (1.15)	0.3446 (0.33)
RevisedBid	0.3157 (0.30)	0.5898 (0.56)	0.2646 (0.18)	0.5214 (0.50)	0.5180 (0.49)	0.3253 (0.22)	0.4991 (0.48)
SuccessfulDeal	0.8099 (0.79)	0.7365 (0.71)	2.0534 (1.51)	0.7916 (0.77)	0.7971 (0.77)	2.0635 (1.52)	0.8425 (0.82)
BoardSize	0.2129 (1.15)	0.1766 (0.95)	0.1795 (0.70)	0.1830 (0.98)	0.2045 (1.10)	0.1854 (0.72)	0.2011 (1.08)
InsiderRatio	7.0399** (2.32)	6.0945* (1.95)	0.1479 (0.03)	6.0868* (1.92)	6.4978** (2.05)	-0.0817 (-0.02)	5.9683* (1.86)
CEODuality	0.4185 (0.27)	0.6695 (0.43)	1.4662 (0.63)	0.5889 (0.38)	0.6552 (0.42)	1.6198 (0.72)	0.6692 (0.43)
CEOTenure	-0.0001 (-0.33)	-0.0001 (-0.34)	-0.0001 (-0.41)	-0.0001 (-0.29)	-0.0001 (-0.30)	-0.0001 (-0.47)	-0.0001 (-0.27)
CEOOwnership	0.0164 (0.68)	0.0151 (0.62)	0.0152 (0.42)	0.0149 (0.61)	0.0194 (0.81)	0.0157 (0.43)	0.0179 (0.74)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-7.2147** (-2.46)	-4.4649 (-1.55)	-9.5871* (-1.74)	-4.7781* (-1.67)	-5.0108* (-1.74)	-9.3897* (-1.71)	-4.8144* (-1.69)
N	423	423	246	423	423	246	423
R ²	0.1632	0.1591	0.2275	0.1573	0.1547	0.2284	0.1571

This table shows the results of the Heckman (1979) second-stage OLS regressions of bidder announcement returns on the self-selection parameter, market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. The self-selection parameter (*IMR*) is derived from the Heckman (1979) first-stage probit regression of the probability of firms making takeover decisions on financial specifics, corporate governance practice and industry specifics. Announcement return is the three-day cumulative abnormal returns (*CARs*) around the announcement date, calculated against the All Ordinaries Index using the modified market model. Column (1) presents the regression against market optimism (*OPT*). Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). Variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6.18 One-year Post-takeover BHARs: Sample Selection Check

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
OPT	-13.4256 (-1.44)						
RelPayShort		7.0926 (0.99)					
RelPayLong			-17.1394 (-1.72)				
RelPayTotal				14.3962** (2.03)			
CPSShort					8.6889 (1.22)		
CPSLong						-11.9768 (-1.19)	
CPSTotal							14.9233** (2.10)
IMR	-5.6377** (-2.02)	-5.7324** (-2.04)	-2.3930 (-0.60)	-6.1806** (-2.21)	-5.7774** (-2.07)	-2.4538 (-0.61)	-6.1449** (-2.21)
Premium	0.1121 (1.22)	0.0872 (0.95)	0.1025 (0.71)	0.0722 (0.79)	0.1049 (1.12)	0.0951 (0.63)	0.0920 (0.99)
RelativeSize	0.8949 (0.37)	0.7034 (0.29)	-0.6199 (-0.16)	0.8973 (0.37)	0.7465 (0.31)	-0.5273 (-0.14)	0.8029 (0.33)
TargetROA	2.6808 (0.42)	4.3719 (0.69)	-4.2597 (-0.55)	5.4728 (0.86)	5.2123 (0.82)	-3.8553 (-0.49)	5.8005 (0.92)
BidderROA	-30.0272 (-0.98)	-25.5380 (-0.83)	-26.9687 (-0.63)	-27.1420 (-0.89)	-23.3914 (-0.76)	-26.3719 (-0.61)	-24.4041 (-0.80)
BidderLEV	-3.5637 (-0.90)	-3.3622 (-0.85)	-6.8176 (-1.33)	-3.6800 (-0.94)	-3.4848 (-0.89)	-6.8790 (-1.34)	-4.0943 (-1.04)
Diversification	6.0807 (0.72)	7.1201 (0.84)	-8.3182 (-0.65)	7.4219 (0.88)	6.7159 (0.80)	-8.7059 (-0.68)	7.2904 (0.87)
HostileBid	5.3806 (0.61)	5.7793 (0.65)	-0.9409 (-0.07)	5.4609 (0.62)	6.9481 (0.78)	-1.2159 (-0.09)	6.0429 (0.68)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT	RelPayShort	RelPayLong	RelPayTotal	CPSShort	CPSLong	CPSTotal
CashPayment	16.7575** (2.09)	15.3381* (1.92)	14.3180 (1.14)	14.9655* (1.88)	15.3817* (1.93)	16.5069 (1.32)	14.7152* (1.85)
CompetingBid	25.7870*** (2.97)	26.3736*** (3.03)	24.1264* (1.90)	27.5688*** (3.17)	26.7071*** (3.07)	24.6064* (1.92)	26.8318*** (3.10)
RevisedBid	-7.7051 (-0.89)	-9.5125 (-1.09)	-8.6324 (-0.68)	-9.4254 (-1.09)	-9.5047 (-1.10)	-9.1523 (-0.71)	-9.1945 (-1.07)
SuccessfulDeal	11.0886 (1.30)	11.5358 (1.34)	6.8208 (0.57)	11.4435 (1.34)	12.2422 (1.43)	8.2248 (0.69)	11.4495 (1.35)
BoardSize	2.1512 (1.40)	2.3861 (1.54)	0.7076 (0.31)	2.4684 (1.61)	2.1872 (1.42)	0.8737 (0.39)	2.2269 (1.45)
InsiderRatio	9.6200 (0.38)	15.4541 (0.59)	2.2973 (0.06)	24.0709 (0.92)	18.6010 (0.71)	14.5515 (0.39)	27.5290 (1.04)
CEODuality	-8.6751 (-0.68)	-10.3564 (-0.81)	13.6795 (0.67)	-9.6591 (-0.76)	-11.1558 (-0.87)	7.0831 (0.36)	-11.3647 (-0.90)
CEOTenure	-0.0000 (-0.02)	-0.0000 (-0.02)	0.0010 (0.47)	-0.0001 (-0.06)	-0.0001 (-0.08)	0.0015 (0.73)	-0.0002 (-0.14)
CEOOwnership	0.0345 (0.17)	0.0401 (0.20)	0.2483 (0.78)	0.0838 (0.42)	0.0140 (0.07)	0.2402 (0.75)	0.0401 (0.20)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-10.3469 (-0.42)	-28.4837 (-1.19)	-1.2216 (-0.03)	-33.1355 (-1.41)	-31.7046 (-1.32)	-7.0837 (-0.15)	-34.8711 (-1.48)
<i>N</i>	423	423	246	423	423	246	423
<i>R</i> ²	0.1714	0.1679	0.2025	0.1779	0.1714	0.1916	0.1807

This table shows the results of the Heckman (1979) second-stage OLS regressions of one-year post-takeover returns on the self-selection parameter, market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. The self-selection parameter (*IMR*) is derived from the Heckman (1979) first-stage probit regression of the probability of firms making takeover decisions on financial specifics, corporate governance practice and industry specifics. Buy-and-hold abnormal returns (*BHARs*), which is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Column (1) presents the regression against market optimism (*OPT*). Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). Variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6.19 Two-year Post-takeover BHARs: Sample Selection Check

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
OPT	-34.6861** (-2.21)						
RelPayShort		21.1797* (1.75)					
RelPayLong			-2.3568 (-0.14)				
RelPayTotal				25.5035** (2.12)			
CPSShort					29.1399** (2.44)		
CPSLong						0.3837 (0.02)	
CPSTotal							28.2176** (2.34)
IMR	-4.6899 (-1.00)	-4.9384 (-1.04)	-2.9336 (-0.44)	-5.5548 (-1.17)	-4.9619 (-1.06)	-2.8057 (-0.43)	-5.3233 (-1.13)
Premium	-0.0338 (-0.22)	-0.1022 (-0.66)	-0.0594 (-0.25)	-0.1151 (-0.74)	0.0325 (0.21)	0.1299 (0.53)	0.0354 (0.22)
RelativeSize	-4.0748 (-0.99)	-4.5936 (-1.11)	-5.7015 (-0.89)	-4.1980 (-1.02)	-4.0577 (-0.99)	-4.7431 (-0.74)	-4.0438 (-0.98)
TargetROA	-11.7864 (-1.10)	-7.0443 (-0.66)	-23.4370* (-1.81)	-6.0583 (-0.56)	-5.2798 (-0.49)	-22.0062* (-1.71)	-5.5939 (-0.52)
BidderROA	-59.0779 (-1.15)	-47.3274 (-0.91)	-44.9615 (-0.63)	-53.7031 (-1.04)	-43.9770 (-0.85)	-38.8899 (-0.55)	-50.6427 (-0.98)
BidderLEV	2.2064 (0.33)	2.7578 (0.41)	-0.3407 (-0.04)	2.1532 (0.32)	2.7929 (0.42)	0.3763 (0.04)	1.7063 (0.26)
Diversification	-13.1264 (-0.92)	-10.6473 (-0.75)	-16.4230 (-0.77)	-9.8226 (-0.69)	-9.2509 (-0.66)	-14.0362 (-0.66)	-7.6446 (-0.54)
HostileBid	24.2280 (1.63)	24.9773* (1.67)	23.6943 (1.09)	24.8252* (1.67)	26.3262* (1.76)	26.7164 (1.22)	24.9986* (1.66)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT	RelPayShort	RelPayLong	RelPayTotal	CPSShort	CPSLong	CPSTotal
CashPayment	4.2836 (0.32)	0.2993 (0.02)	-2.1356 (-0.10)	0.2936 (0.02)	-0.3671 (-0.03)	0.1962 (0.01)	-1.0695 (-0.08)
CompetingBid	18.1918 (1.24)	19.8946 (1.35)	16.7405 (0.79)	21.3337 (1.45)	20.8482 (1.42)	17.8409 (0.84)	20.1142 (1.37)
RevisedBid	-15.4420 (-1.05)	-19.9856 (-1.36)	-25.7347 (-1.21)	-19.4216 (-1.33)	-20.9897 (-1.44)	-28.2680 (-1.34)	-19.7047 (-1.35)
SuccessfulDeal	-1.4793 (-0.10)	-0.1824 (-0.01)	-12.1053 (-0.61)	-0.9057 (-0.06)	-0.8165 (-0.06)	-11.2076 (-0.57)	-2.6100 (-0.18)
BoardSize	1.5932 (0.61)	2.2347 (0.86)	-0.2906 (-0.08)	2.2440 (0.86)	1.5661 (0.60)	-0.2112 (-0.06)	1.8218 (0.70)
InsiderRatio	2.7026 (0.63)	4.4886 (1.02)	11.3121* (1.78)	5.2511 (1.19)	5.4803 (1.25)	11.2478* (1.83)	5.9450 (1.33)
CEODuality	-11.0654 (-0.51)	-14.6112 (-0.68)	-21.4304 (-0.64)	-13.8820 (-0.64)	-16.6582 (-0.78)	-20.4666 (-0.63)	-16.2111 (-0.75)
CEOTenure	-0.0007 (-0.27)	-0.0007 (-0.27)	0.0001 (0.03)	-0.0008 (-0.32)	-0.0009 (-0.34)	0.0000 (0.01)	-0.0011 (-0.42)
CEOOwnership	-0.2018 (-0.60)	-0.1770 (-0.52)	0.1024 (0.19)	-0.1331 (-0.39)	-0.2681 (-0.80)	0.0212 (0.04)	-0.2261 (-0.68)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	11.1571 (0.27)	-38.6641 (-0.95)	8.9509 (0.11)	-38.6069 (-0.97)	-51.6685 (-1.28)	-3.8429 (-0.05)	-47.0898 (-1.18)
<i>N</i>	423	423	246	423	423	246	423
<i>R</i> ²	0.2035	0.1980	0.2193	0.2024	0.2073	0.2204	0.2060

This table shows the results of the Heckman (1979) second-stage OLS regressions of two-year post-takeover returns the self-selection parameter, market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. The self-selection parameter (*IMR*) is derived from the Heckman (1979) first-stage probit regression of the probability of firms making takeover decisions on financial specifics, corporate governance practice and industry specifics. The buy-and-hold abnormal returns (*BHARs*), which is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Column (1) presents the regression against market optimism (*OPT*). Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). Variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.5.2 Robustness Tests Using Different Measures of Variables

6.5.2.1 Alternative Measures of Market Optimism and CEO Pay Disparity

In the analyses reported in Sections 6.1, 6.2 and 6.3, market optimism is classified by running the regression on the five-year moving average detrended market P/E and the Spread between Bank Lending to Business Rate and Interbank Overnight Cash Rate and its lag term of the previous quarter. The detrending technique is not applied on the Spread in the previous tests given the interest rate smoothing, which refers to the central banks' tendency to move the official interest rates in a sequence of relatively small steps in the same direction. In this section, high and low market optimism is classified based on the five-year moving average detrended market P/E and five-year moving average detrended Spread to address the concern of excluding the trending component in the Spread.

For the CEO pay disparity, the previous results are reported based on the ranking of CEO relative pay, which is the ratio of CEO pay over the average pay of other directors on the board, and CEO pay slice, which is the ratio of CEO pay over the total pay of the directors on the board. It should be noted that inside directors and outside directors carry different duties as well as being paid in different magnitudes (Hambrick and D'Aveni, 1992). Hence, there may be a concern that including compensation of all directors may not represent the compensation of an executive nor a non-executive director. However, as Hambrick and D'Aveni (1992) argue, this inclusion holds its validity and interpretability if the variance between compensation of executive and non-executive directors is common for all firms, which is the case of the sample constructed in this research. To address the concern of comparability, this research follows Bebchuk et al. (2011) who compare CEO compensation to the compensation of the top five executives. Nonetheless, corporate governance in Australia diverges from international practice in several ways. One of the most striking features is the smaller board size and accordingly, the lower number of executives on the board. The average Australian board size of the present takeover sample is seven members, which is smaller than the average US board size of 10 to 12 (Yermack, 1996; Coles et al., 2008) and 10 in the UK (Coakley and Iliopoulou, 2006). Therefore, comparing CEO

pay to that of the top five executives will significantly reduce the sample size. This study, therefore, conducts additional tests by comparing CEO compensation to the average and total compensation of the top three executives to reflect the common practice among Australian firms.

Table 6.1 and Table 6.3 on takeover premium univariate and multivariate analysis, Table 6.4 and Table 6.6 on CAR $[-1, 1]$ univariate and multivariate analysis and Table 6.7, Table 6.9 and Table 6.10 on one-year and two-year BHARs univariate and multivariate analysis are replicated using the new measures. The results are reported in Table 6.20 to Table 6.26.

Panel A Table 6.20 compares takeover premium offered in high and low market optimism (*OPT5yav*) using the five-year moving average detrending technique for both market P/E and the Spread. It can be seen that the alternative classification of market optimism produces similar results to those reported in Table 6.1. On average, deals announced in high market optimism offer higher premiums compared with that of deals in low optimism periods. The mean difference and the median difference are respectively significant at the 10% level and 5% level. Panel B and Panel C of Table 6.20 report takeover premiums offered by CEOs who are paid a high and low pay disparity in comparison with the top three executives. Higher average premiums are recorded for high CEO relative pay (*RelPayTop3Short*, *RelPayTop3Long* and *RelPayTop3Total*) and high CEO pay slice (*CPSTop3Short*, *CPSTop3Long* and *CPSTop3Total*) with significant mean and median difference in the *CPSTop3Total* variable. This observation is different to the results reported in Table 6.1 in which the CEOs with high pay disparity in the long-term component offer lower premiums than their counterparts and the mean and median difference tests are significant in most of the pay categories.

Table 6.20 Takeover Premium Univariate Evidence: Different Optimism and CEO Pay Disparity Measures

Obs	Mean(%)	Median(%)	Mean Difference		Median Difference		
			t-stat	p-value	Z-stat	p-value	
Panel A: High Optimism vs Low Optimism: Five-year average detrended Spread							
High OPT5yav	246	31.13	26.44	1.8654	0.0628	2.115	0.0344
Low OPT5yav	177	24.16	20				
Total	423	28.21	24.67				
Panel B: High RelPayTop3 vs Low RelPayTop3 (CEO pay/Average pay of top three executives)							
Short-term Pay							
High	112	31.37	28.37	0.3108	0.7562	0.444	0.6567
Low	157	29.89	25.78				
Total	269	30.51	26.05				
Long-term Pay							
High	28	35.97	33.45	0.5842	0.5602	0.614	0.5390
Low	92	31.61	26.91				
Total	120	32.63	27.57				
Total Pay							
High	107	34.79	29.11	1.4852	0.1387	1.514	0.1300
Low	162	27.68	25.04				
Total	269	30.51	26.05				
Panel C: High CPSTop3 vs Low CPSTop3 (CEO pay/Total pay of top three executives)							
Short-term Pay							
High	122	32.29	28.37	0.6927	0.4891	0.444	0.6567
Low	147	29.02	25.78				
Total	269	30.51	26.05				
Long-term Pay							
High	49	36.12	33.33	0.9236	0.3576	1.300	0.1935
Low	71	30.22	25				
Total	120	32.63	27.57				
Total Pay							
High	125	34.78	29.68	1.7022	0.0899	1.975	0.0483
Low	144	26.80	24.77				
Total	269	30.51	26.05				

This table shows the summary statistics of takeover premium. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed bidders and targets on the ASX. *Premium* is the ratio of the offer price, minus the target share price 60 days prior to the announcement, divided by pre-takeover share price, expressed in percentage. Panel A presents the mean and median premium of takeovers announced in high and low *Optimism* months. Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period using the five-year moving average detrending technique on market P/E and the Spread. Panels B and C present the mean and median value of takeover premiums announced by CEOs with high and low pay disparity, measured by *RelPayTop3* and *CPSTop3*, in short-term compensation, long-term compensation and total compensation. *RelPayTop3* is the ratio of CEO pay over the average pay of the top three executives. *CPSTop3* is the ratio of CEO pay over the total pay of the top three executives. Bold figures indicate the significant difference at the level of 10% or better.

Table 6.21 replicates Table 6.3 to analyse the impact of market optimism and CEO pay disparity on takeover premium. Findings remain similar to those previously reported with the larger coefficients in all columns. In Column (1), the coefficient of

OPT5yav is positive and significant at the 10% level. This indicates that a higher premium of 10.38% is offered to target shareholders in high market optimism compared to that of the deal announced in low optimistic conditions. The coefficients of *RelPayTop3Short* and *RelPayTop3Total* variables in Columns (2) and (4) and *CPSTop3Short* and *CPSTop3Total* in Columns (5) and (7) remain positive and significant at the 10% level or better. It is shown that CEOs who receive high pay disparity increase premiums in a range from 9.67% to 13.63%. The coefficient of *RelPayTop3Long* in Column (3) and *CPSPayTop3Long* in Column (6) are insignificant, confirming the findings from Table 6.3 that there is not enough evidence on the impact of higher long-term pay disparity on takeover premium.

The univariate analysis on announcement returns reported in Panel Table 6.22 records similar results as Table 6.4 for the two subsamples on high and low market optimism. On average, in high market optimism, bidders create an average gain of 1.04% over the three days surrounding the announcement date whereas takeovers initiated in low market optimism suffer a negative announcement return of -0.01%, significant at the 10% level. However, in Panel B and Panel C, inconsistent in sign of the difference and insignificant mean and median difference tests are reported in all CEO pay disparity categories. Although this observation is different to that previously recorded in Panel B and Panel C of Table 6.4, the results of the alternative classification of market optimism and CEO pay disparity remain robust in the multivariate analysis. In Column (1) of Table 6.23, the coefficient generated by *OPT5yav* on three-day CARs remains positive and significant, whereas the insignificant coefficients of CEO pay disparity in all categories are reported in Column (2) to Column (7). Overall, the announcement returns analysis conducted using alternative optimism and CEO pay disparity measures provides robust evidence for the previous findings of the main tests.

On the long-term returns to acquiring firms, Panel A of Table 6.24 paints the similar picture with Panel A of Table 6.7. It shows that the mean and median difference tests are insignificant for the one-year BHARs and significant at the 10% level or better for the two-year BHARs. It confirms the previous test that acquiring firms that process takeover transactions in high market optimism suffer a significant loss (-9.85%)

compared to the average gain (6.03%) for firms that initiate takeover transactions in less favourable market conditions. The results on CEO relative pay and CEO pay slice reported in Panel B and Panel C remain robust to the findings in Table 6.7, except that the mean and median difference tests are not significant for the relative pay in cash and the BHARs generated by CEOs who earn high *RelPayTop3Long* become higher than BHARs produced by their counterpart. In the multivariate analysis, the positive impact of CEO pay disparity seems to be more pronounced in Table 6.25 than in Table 6.9 with a larger coefficient, which is statistically significant in five out of six columns. In Table 6.26, the coefficient of market optimism remains negative and significant whereas the coefficients of the CEO pay disparity remain positive (two of them are significant). This finding provides further support for the main test on the association of market optimism and CEO pay disparity on the long-term performance of the bidding firms.

Table 6.21 Takeover Premium Multivariate Analysis: Different Optimism and CEO Pay Disparity Measures

	(1) OPT	(2) RelPayTop3Short	(3) RelPayTop3Long	(4) RelPayTop3Total	(5) CPSTop3Short	(6) CPSTop3Long	(7) CPSTop3Total
OPT5yav	10.3827* (1.81)						
RelPayTop3Short		9.6698* (1.65)					
RelPayTop3Long			7.1490 (0.76)				
RelPayTop3Total				13.4447** (2.35)			
CPSTop3Short					9.9920* (1.76)		
CPSTop3Long						11.2417 (1.34)	
CPSTop3Total							13.6336** (2.49)
RelativeSize	-3.4958** (-2.53)	-2.6234 (-1.40)	-5.7345** (-2.14)	-2.3155 (-1.24)	-2.5846 (-1.38)	-5.5809** (-2.10)	-2.4116 (-1.30)
TargetROA	-0.4360 (-0.12)	9.1338 (0.96)	-2.2954 (-0.16)	7.9234 (0.84)	8.3726 (0.88)	-3.8041 (-0.27)	8.1798 (0.87)
BidderROA	9.4007 (0.58)	-8.1665 (-0.36)	18.2663 (0.50)	0.6439 (0.03)	-8.1077 (-0.36)	24.6362 (0.68)	-3.5826 (-0.16)
BidderLEV	-0.8525 (-0.36)	-1.5424 (-0.46)	-3.0780 (-0.60)	-1.3065 (-0.39)	-1.7765 (-0.53)	-3.0920 (-0.62)	-1.8127 (-0.55)
Diversification	-9.7376** (-2.15)	-11.5445* (-1.70)	-21.1486* (-1.69)	-11.5390* (-1.71)	-11.7126* (-1.72)	-20.7369* (-1.67)	-9.6917 (-1.43)
HostileBid	-4.6307 (-1.05)	-5.5370 (-0.92)	-15.3921 (-1.58)	-5.9232 (-0.99)	-6.5415 (-1.08)	-15.1993 (-1.58)	-5.8993 (-0.98)
CashPayment	3.4657 (0.75)	3.2430 (0.52)	3.3448 (0.35)	3.0878 (0.50)	3.8373 (0.62)	3.5244 (0.37)	3.8153 (0.62)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT	RelPayTop3Short	RelPayTop3Long	RelPayTop3Total	CPSTop3Short	CPSTop3Long	CPSTop3Total
CompetingBid	-4.0667 (-0.82)	-1.3155 (-0.21)	10.7414 (1.14)	-2.2210 (-0.35)	-1.3578 (-0.21)	9.5712 (1.02)	-3.1137 (-0.49)
RevisedBid	6.0432 (1.26)	6.9983 (1.09)	17.7403* (1.91)	6.2344 (0.97)	7.3658 (1.15)	17.0168* (1.85)	6.1050 (0.95)
BoardSize	-0.4001 (-0.47)	-2.2382* (-1.89)	-2.3187 (-1.28)	-1.7576 (-1.53)	-2.3537* (-1.97)	-1.8722 (-1.02)	-1.8519 (-1.62)
InsiderRatio	-11.5298 (-0.91)	-17.4600 (-0.98)	-6.1662 (-0.24)	-12.8593 (-0.72)	-18.7901 (-1.06)	-2.1129 (-0.08)	-12.4152 (-0.70)
CEODuality	-3.2661 (-0.46)	-11.9763 (-1.20)	-11.3185 (-0.62)	-11.4463 (-1.16)	-12.8183 (-1.28)	-13.2150 (-0.74)	-11.4383 (-1.16)
CEOTenure	0.0007 (0.79)	0.0008 (0.64)	0.0000 (0.00)	0.0005 (0.42)	0.0010 (0.80)	-0.0001 (-0.05)	0.0007 (0.59)
CEOOwnership	0.1696 (1.40)	-0.0046 (-0.03)	-0.8149 (-1.04)	0.0164 (0.11)	-0.0289 (-0.19)	-0.6096 (-0.77)	-0.0062 (-0.04)
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	29.5290** (2.16)	51.3735** (2.49)	19.6709 (0.52)	47.3029** (2.29)	52.3648** (2.55)	15.9124 (0.43)	46.0415** (2.23)
<i>N</i>	423	269	120	269	269	120	269
<i>R</i> ²	0.1496	0.1611	0.3331	0.1711	0.1624	0.3431	0.1735

This table shows the results of the OLS regressions of takeover premium on market optimism, CEO pay disparity, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 transactions announced from 2002 to 2015 between listed targets and bidders on the ASX. *Premium* is the ratio of the offer price, minus the target share price 60 days prior to the announcement, divided by pre-takeover share price, expressed in percentage. Column (1) presents the regression against market optimism (*OPT*). Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period using the five-year moving average detrending technique on market P/E and the Spread. Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayTop3Short*, *RelPayTop3Long* and *RelPayTop3Total*) and CEO pay slice (*CPSPayTop3Short*, *CPSPayTop3Long* and *CPSPayTop3Total*). CEO relative pay is the ratio of CEO pay over the average pay of the top three executives. CEO pay slice is the ratio of CEO pay over the total pay of the top three executives. Variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6.22 CAR [-1, 1] Univariate Evidence: Different Optimism and CEO Pay Disparity Measures

	Obs	Mean(%)	Median(%)	Mean Difference		Median Difference	
				t-stat	p-value	Z-stat	p-value
Panel A: High optimism vs Low optimism: Five-year average detrended Spread							
High Optimism	246	1.04	.59	1.6586	0.0979	1.432	0.1521
Low Optimism	177	-.01	-.09				
Total	423	.60	.25				
Panel B: High RelPayTop3 vs Low RelPayTop3 (CEO pay/Average pay of top three executives)							
Short-term Pay							
High	112	.84	.59	0.4343	0.6645	0.382	0.7027
Low	157	.49	.43				
Total	269	.64	.55				
Long-term Pay							
High	28	1.08	.64	0.5141	0.6081	0.549	0.5828
Low	92	.34	.68				
Total	120	.52	.68				
Total Pay							
High	107	.78	.55	0.2836	0.7769	0.030	0.9757
Low	162	.54	.58				
Total	269	.64	.55				
Panel C: High CPSTop3 vs low CPSTop3 (CEO pay/Total pay of top three executives)							
Cash Comp							
High	122	.62	.57	-0.0293	0.9766	-0.083	0.9341
Low	147	.65	.43				
Total	269	.64	.55				
Long-term Comp							
High	49	.03	.19	-0.6746	0.5013	-0.935	0.3500
Low	71	.85	.97				
Total	120	.52	.68				
Total Comp							
High	125	.67	.55	0.0806	0.9358	-0.049	0.9611
Low	144	.61	.59				
Total	269	.64	.55				

This table shows the summary statistics of bidder announcement returns. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed bidders and targets on the ASX. CARs is the three-day cumulative abnormal returns to acquiring firms around the announcement date, calculated against the All Ordinaries Index using the modified market model. Panel A presents the mean and median CAR[-1, 1] from takeovers announced in high and low *Optimism* months. Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period using the five-year moving average detrending technique on market P/E and the Spread. Panels B and C present the mean and median value of takeover premiums announced by CEOs with high and low pay disparity, measured by *RelPayTop3* and *CPSTop3*, in short-term compensation, long-term compensation and total compensation. *RelPayTop3* is the ratio of CEO pay over the average pay of the top three executives. *CPSTop3* is the ratio of CEO pay over the total pay of the top three executives. Bold figures indicate the significant difference at the level of 10% or better.

Table 6.23 CAR[-1, 1] Multivariate Analysis: Different Optimism and CEO Pay Disparity Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT5yav	RelPayTop3Short	RelPayTop3Long	RelPayTop3Total	CPSTop3Short	CPSTop3Long	CPSTop3Total
OPT5yav	1.0897** (1.71)						
RelPayTop3Short		-0.0790 (-0.08)					
RelPayTop3Long			0.4918 (0.25)				
RelPayTop3Total				0.3922 (0.39)			
CPSTop3Short					-0.7429 (-0.76)		
CPSTop3Long						0.2227 (0.13)	
CPSTop3Total							0.2804 (0.29)
Premium	-0.0005 (-0.05)	-0.0093 (-0.82)	-0.0211 (-0.93)	-0.0101 (-0.89)	-0.0084 (-0.75)	-0.0211 (-0.92)	-0.0100 (-0.87)
RelativeSize	0.3240 (1.37)	0.2338 (0.72)	0.2187 (0.37)	0.2379 (0.73)	0.2361 (0.72)	0.2133 (0.36)	0.2354 (0.72)
TargetROA	-1.5109** (-2.49)	-2.0544 (-1.26)	-4.0511 (-1.38)	-2.0444 (-1.26)	-2.0759 (-1.28)	-4.0858 (-1.39)	-2.0379 (-1.25)
BidderROA	-1.2760 (-0.47)	-4.2366 (-1.10)	-5.6446 (-0.77)	-3.9119 (-1.00)	-4.3631 (-1.14)	-5.8394 (-0.79)	-4.0920 (-1.06)
BidderLEV	0.4698 (1.19)	0.2572 (0.45)	0.0077 (0.01)	0.2853 (0.50)	0.2361 (0.41)	-0.0255 (-0.02)	0.2678 (0.47)
Diversification	0.3332 (0.42)	-0.2245 (-0.19)	-2.5768 (-1.00)	-0.2585 (-0.22)	-0.1603 (-0.14)	-2.6106 (-1.01)	-0.2113 (-0.18)
HostileBid	0.1674 (0.19)	0.9518 (0.79)	2.3471 (1.04)	0.9327 (0.78)	1.0155 (0.84)	2.3568 (1.04)	0.9495 (0.79)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT5yav	RelPayTop3Short	RelPayTop3Long	RelPayTop3Total	CPSTop3Short	CPSTop3Long	CPSTop3Total
CashPayment	1.1236 (1.46)	0.5227 (0.49)	0.6022 (0.31)	0.5062 (0.48)	0.5048 (0.48)	0.5887 (0.30)	0.5238 (0.49)
CompetingBid	1.0978 (1.31)	0.2818 (0.26)	0.4754 (0.24)	0.2395 (0.22)	0.3059 (0.28)	0.4488 (0.22)	0.2361 (0.21)
RevisedBid	-0.6097 (-0.72)	0.7457 (0.66)	1.2190 (0.60)	0.7061 (0.62)	0.7635 (0.67)	1.2585 (0.62)	0.7089 (0.62)
SuccessfulDeal	1.1529 (1.36)	1.4482 (1.25)	3.8258* (1.81)	1.4029 (1.21)	1.4868 (1.28)	3.7889* (1.79)	1.4349 (1.24)
BoardSize	0.1659 (1.17)	0.1135 (0.55)	0.6208 (1.64)	0.1083 (0.54)	0.1544 (0.74)	0.6298 (1.64)	0.1071 (0.54)
InsiderRatio	5.2553** (2.46)	7.8380** (2.57)	3.5381 (0.67)	8.0297*** (2.61)	7.8188** (2.57)	3.3494 (0.63)	7.9887** (2.60)
CEODuality	0.7854 (0.67)	1.2084 (0.71)	-1.1328 (-0.31)	1.1632 (0.68)	1.3733 (0.80)	-1.2641 (-0.35)	1.1724 (0.69)
CEOTenure	-0.0001 (-0.63)	0.0001 (0.36)	-0.0001 (-0.15)	0.0001 (0.26)	0.0001 (0.40)	-0.0001 (-0.15)	0.0001 (0.31)
CEOOwnership	0.0278 (1.38)	0.0369 (1.41)	0.2280 (1.44)	0.0384 (1.46)	0.0371 (1.42)	0.2310 (1.43)	0.0375 (1.44)
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-4.4852*** (-2.73)	-4.3586 (-1.18)	-9.5702 (-1.19)	-4.5127 (-1.21)	-4.3069 (-1.16)	-9.4023 (-1.17)	-4.5122 (-1.21)
<i>N</i>	423	269	120	269	269	120	269
<i>R</i> ²	0.0677	0.1584	0.3064	0.1589	0.1605	0.3060	0.1587

This table shows the results of the OLS regressions of bidder announcement returns on market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. Announcement return is the three-day cumulative abnormal returns (CARs) around the announcement date, calculated against the All Ordinaries Index using the modified market model. Column (1) presents the regression against market optimism (*OPT*). Column (1) presents the regression against market optimism (*OPT5yav*). Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period using the five-year moving average detrending technique on market P/E and the Spread. Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayTop3Short*, *RelPayTop3Long* and *RelPayTop3Total*) and CEO pay slice (*CPSPayTop3Short*, *CPSPayTop3Long* and *CPSPayTop3Total*). CEO relative pay is the ratio of CEO pay over the average pay of the top three executives. CEO pay slice is the ratio of CEO pay over the total pay of the top three executives. Variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6.24 One-year and Two-year Post-takeover BHARs Univariate Evidence: Different Optimism and CEO Pay Disparity Measures

	Obs	One-year Post-takeover BHARs						Two-year Post-takeover BHARs					
		Mean (%)	Median (%)	Mean Difference		Median Difference		Mean (%)	Median (%)	Mean Difference		Median Difference	
				t-stat	p-value	z-stat	p-value			t-stat	p-value	z-stat	p-value
Panel A: High Optimism vs Low Optimism: Five-year average detrended Spread													
High Optimism	246	-4.20	-3.94	-1.0320	0.3027	-1.168	0.2430	-9.85	-4.05	-1.9026	0.0578	-2.403	0.0163
Low Optimism	177	1.43	3.79					6.03	10.85				
Total	423	-1.84	-1.47					-3.20	2.80				
Panel B: High RelPayTop3 vs Low RelPayTop3 (CEO pay/Average pay of top three executives)													
Short-term Pay													
High	112	5.48	1.21	1.6876	0.0927	1.527	0.1267	8.03	8.87	1.5316	0.1268	1.242	0.2143
Low	157	-5.49	-5.37					-7.52	-1.04				
Total	269	-.92	-1.67					-1.04	2.22				
Long-term Pay													
High	28	19.79	11.44	1.8821	0.0623	1.244	0.2134	17.02	18.29	1.3182	0.1900	1.263	0.2067
Low	92	-2.51	-1.56					-4.14	.37				
Total	120	2.68	-.22					.79	9.85				
Total Pay													
High	107	3.14	.90	1.0273	0.3052	1.005	0.3149	9.75	9.36	1.7548	0.0804	1.559	0.1190
Low	162	-3.60	-3.71					-8.17	-3.15				
Total	269	-.92	-1.67					-1.04	2.22				
Panel C: High CPSTop3 vs CPSTop3 (CEO pay/Total pay of top three executives)													
Short-term Pay													
High	122	5.65	-1.28	1.8718	0.0623	1.238	0.2156	8.25	7.87	1.6938	0.0915	1.656	0.0977
Low	147	-6.38	-1.68					-8.76	-7.57				
Total	269	-.92	-1.67					-1.04	2.22				

	Obs	One-year Post-takeover BHARs						Two-year Post-takeover BHARs					
		Mean (%)	Median (%)	Mean Difference		Median Difference		Mean (%)	Median (%)	Mean Difference		Median Difference	
				t-stat	p-value	z-stat	p-value			t-stat	p-value	z-stat	p-value
Long-term Pay													
High	49	4.41	-1.76	0.2811	0.7792	0.051	0.9595	10.38	15.86	1.1512	0.2520	1.170	0.2418
Low	71	1.50	3.71					-5.59	-1.85				
Total	120	2.68	-.22					.79	9.85				
Total Pay													
High	125	4.97	1.39	1.7143	0.0876	1.407	0.1596	8.40	2.74	1.7613	0.0793	1.561	0.1185
Low	144	-6.04	-5.75					-9.25	-1.28				
Total	269	-.92	-1.67					-1.04	2.22				

This table shows the summary statistics of the bidder long-term returns. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. The buy-and-hold abnormal returns (*BHARs*), which is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Panel A presents the mean and median one-year and two-year *BHARs* from takeovers announced in high and low *Optimism* months. Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period using the five-year moving average detrending technique on market P/E and the Spread. Panels B and C present the mean and median value of takeover premiums announced by CEOs with high and low pay disparity, measured by *RelPayTop3* and *CPSTop3*, in short-term compensation, long-term compensation and total compensation. *RelPayTop3* is the ratio of CEO pay over the average pay of the top three executives. *CPSTop3* is the ratio of CEO pay over the total pay of the top three executives. Bold figures indicate the significant difference at the level of 10% or better.

Table 6.25 One-year Post-takeover BHARs Multivariate Analysis: Different Optimism and CEO Pay Disparity Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT5yav	RelPayTop3Short	RelPayTop3Long	RelPayTop3Total	CPSTop3Short	CPSTop3Long	CPSTop3Total
OPT5yav	-1.7004 (-0.20)						
RelPayTop3Short		17.6617** (2.17)					
RelPayTop3Long			40.5313 (2.59)				
RelPayTop3Total				15.3805* (1.90)			
CPSTop3Short					13.4058* (1.70)		
CPSTop3Long						14.2557 (0.97)	
CPSTop3Total							18.3207** (2.38)
Premium	0.0778 (1.02)	0.1245 (1.36)	-0.1259 (-0.68)	0.1194 (1.29)	0.1259 (1.37)	-0.1140 (-0.59)	0.1104 (1.20)
RelativeSize	0.3773 (0.18)	2.4015 (0.91)	2.3684 (0.50)	2.7143 (1.03)	2.3397 (0.88)	1.8081 (0.37)	2.6748 (1.02)
TargetROA	-3.2311 (-0.60)	31.0649** (2.35)	23.2550 (0.98)	28.9470** (2.19)	30.0004** (2.26)	21.0146 (0.85)	29.3820** (2.23)
BidderROA	-18.7424 (-0.78)	6.0271 (0.19)	84.8160 (1.43)	14.7706 (0.46)	5.5250 (0.18)	64.0913 (1.03)	11.0828 (0.36)
BidderLEV	-1.1715 (-0.33)	5.4746 (1.18)	5.0025 (0.59)	5.3214 (1.15)	4.8716 (1.05)	2.0378 (0.24)	4.7862 (1.04)
Diversification	0.8294 (0.12)	-1.7061 (-0.18)	-34.2467 (-1.64)	-1.4179 (-0.15)	-1.3580 (-0.14)	-37.3289* (-1.73)	0.9429 (0.10)
HostileBid	9.6914 (1.25)	17.5807* (1.81)	10.1778 (0.55)	16.3805* (1.68)	16.2058* (1.66)	10.8075 (0.57)	16.9339* (1.75)
	19.0678***	7.7004	13.7857	7.9276	8.2888	12.4806	8.7313

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT5yav	RelPayTop3Short	RelPayTop3Long	RelPayTop3Total	CPSTop3Short	CPSTop3Long	CPSTop3Total
CashPayment							
	(2.73)	(0.90)	(0.87)	(0.92)	(0.96)	(0.76)	(1.02)
CompetingBid	17.0320**	24.1110***	36.4495**	23.1017**	24.6648***	34.4471**	21.8380**
	(2.28)	(2.70)	(2.25)	(2.57)	(2.75)	(2.05)	(2.43)
RevisedBid	-8.4791	-9.6099	-20.9953	-9.6377	-9.1550	-17.0568	-10.3399
	(-1.15)	(-1.04)	(-1.27)	(-1.04)	(-0.99)	(-0.99)	(-1.12)
SuccessfulDeal	10.0177	32.0048***	55.2082***	31.3531***	32.8226***	51.4060***	32.3726***
	(1.36)	(3.41)	(3.23)	(3.32)	(3.49)	(2.90)	(3.46)
BoardSize	0.6712	0.1802	2.3238	1.0139	0.4339	2.8996	0.8998
	(0.52)	(0.11)	(0.76)	(0.63)	(0.26)	(0.90)	(0.56)
InsiderRatio	3.1436	-13.2063	31.8877	-9.6149	-13.5939	12.7746	-7.6778
	(0.17)	(-0.53)	(0.75)	(-0.39)	(-0.55)	(0.29)	(-0.31)
CEODuality	-16.2052	10.0222	12.4007	11.5255	9.0083	1.6778	11.2738
	(-1.54)	(0.73)	(0.42)	(0.84)	(0.64)	(0.05)	(0.82)
CEOTenure	-0.0002	-0.0008	0.0042	-0.0008	-0.0004	0.0041	-0.0007
	(-0.15)	(-0.47)	(1.30)	(-0.49)	(-0.23)	(1.23)	(-0.42)
CEOOwnership	-0.0491	0.0151	0.6464	0.0244	-0.0219	0.8236	0.0010
	(-0.27)	(0.07)	(0.50)	(0.11)	(-0.10)	(0.61)	(0.00)
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-18.8879	-31.1984	-50.4816	-32.8462	-28.9229	-33.0861	-36.4024
	(-0.88)	(-1.04)	(-0.78)	(-1.09)	(-0.96)	(-0.49)	(-1.21)
<i>N</i>	423	269	120	269	269	120	269
<i>R</i> ²	0.1193	0.2378	0.4119	0.2342	0.2317	0.3685	0.2409

This table shows the results of the OLS regressions of bidder one-year post-takeover returns on market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. The buy-and-hold abnormal returns (*BHARs*), which is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Column (1) presents the regression against market optimism (*OPT5yav*). Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period using the five-year moving average detrending technique on market P/E and the Spread. Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayTop3Short*, *RelPayTop3Long* and *RelPayTop3Total*) and CEO pay slice (*CPSPayTop3Short*, *CPSPayTop3Long* and *CPSPayTop3Total*). CEO relative pay is the ratio of CEO pay over the average pay of the top three executives. CEO pay slice is the ratio of CEO pay over the total pay of the top three executives. Variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6.26 Two-year Post-takeover BHARs Multivariate Analysis: Different Optimism and CEO Pay Disparity Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT5yav	RelPayTop3Short	RelPayTop3Long	RelPayTop3Total	CPSTop3Short	CPSTop3Long	CPSTop3Total
OPT5yav	-25.1872* (-1.75)						
RelPayTop3Short		26.3481* (1.89)					
RelPayTop3Long			34.4678 (1.48)				
RelPayTop3Total				-22.8150 (-0.17)			
CPSTop3Short					21.5440 (0.16)		
CPSTop3Long						1.6005 (0.07)	
CPSTop3Total							23.3238* (1.73)
Premium	0.0454 (0.36)	0.0409 (0.26)	-0.2537 (-0.93)	0.0921 (0.59)	0.0853 (0.55)	-0.2234 (-0.80)	0.0418 (0.27)
RelativeSize	-7.8743** (-2.24)	-9.2735** (-2.08)	-14.0344* (-1.99)	-9.4364** (-2.10)	-9.4174** (-2.10)	-14.8089** (-2.07)	-9.1584** (-2.05)
TargetROA	-8.1490 (-0.90)	4.1768 (0.19)	24.1898 (0.69)	1.8597 (0.08)	1.9525 (0.09)	23.8792 (0.66)	1.1145 (0.05)
BidderROA	-2.5075 (-0.06)	-8.9469 (-0.17)	-37.1003 (-0.42)	-18.1808 (-0.34)	-15.9694 (-0.30)	-66.7069 (-0.74)	-5.3921 (-0.10)
BidderLEV	3.2124 (0.54)	10.1780 (1.30)	9.3055 (0.74)	9.0292 (1.14)	9.2398 (1.18)	6.1935 (0.49)	9.5208 (1.22)
Diversification	-22.0762* (-1.93)	-20.7556 (-1.29)	-30.3623 (-0.98)	-18.3982 (-1.14)	-18.7645 (-1.16)	-33.7468 (-1.07)	-18.1600 (-1.13)
HostileBid	16.9761 (1.31)	24.6297 (1.50)	15.8533 (0.58)	23.2552 (1.40)	22.9539 (1.38)	15.9572 (0.58)	21.8528 (1.33)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT5yav	RelPayTop3Short	RelPayTop3Long	RelPayTop3Total	CPSTop3Short	CPSTop3Long	CPSTop3Total
CashPayment	6.5352 (0.56)	-9.7481 (-0.67)	-0.4923 (-0.02)	-9.2410 (-0.63)	-9.2756 (-0.63)	-2.0972 (-0.09)	-9.1229 (-0.63)
CompetingBid	2.0902 (0.17)	7.8851 (0.52)	42.6634* (1.77)	9.6958 (0.63)	9.3871 (0.62)	41.4371* (1.69)	5.0310 (0.33)
RevisedBid	-3.2061 (-0.26)	-18.0142 (-1.16)	-33.3400 (-1.35)	-15.3239 (-0.98)	-15.5890 (-1.00)	-28.2437 (-1.13)	-16.7145 (-1.07)
SuccessfulDeal	1.4877 (0.12)	3.1943 (0.20)	20.1147 (0.79)	4.6868 (0.29)	4.3239 (0.27)	14.9186 (0.58)	2.5390 (0.16)
BoardSize	-0.7062 (-0.33)	-3.1442 (-1.12)	0.4255 (0.09)	-1.8516 (-0.67)	-1.9887 (-0.69)	0.4994 (0.11)	-2.1815 (-0.80)
InsiderRatio	-9.1685 (-0.29)	-1.4223 (-0.03)	11.7877* (1.85)	-10.2368 (-0.24)	-9.1095 (-0.22)	9.2476 (1.43)	4.1569 (0.10)
CEODuality	-6.6708 (-0.38)	-10.9042 (-0.47)	-26.0381 (-0.59)	-7.6579 (-0.33)	-8.3627 (-0.35)	-34.8926 (-0.79)	-9.0341 (-0.39)
CEOTenure	-0.0014 (-0.61)	-0.0010 (-0.36)	0.0001 (0.02)	-0.0002 (-0.07)	-0.0003 (-0.11)	0.0001 (0.03)	-0.0010 (-0.35)
CEOOwnership	-0.1560 (-0.51)	-0.2379 (-0.66)	-0.6466 (-0.34)	-0.3025 (-0.83)	-0.2950 (-0.82)	-0.6863 (-0.35)	-0.2389 (-0.67)
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-3.3728 (-0.09)	-12.6404 (-0.25)	-47.9505 (-0.50)	-4.9793 (-0.10)	-5.9765 (-0.12)	-24.0304 (-0.25)	-18.9823 (-0.37)
<i>N</i>	423	269	120	269	269	120	269
<i>R</i> ²	0.1452	0.1788	0.3068	0.1658	0.1658	0.2871	0.1766

This table shows the results of the OLS regressions of bidder two-year post-takeover returns on market optimism, CEO pay disparity, takeover premium, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed targets and bidders on the ASX. The buy-and-hold abnormal returns (*BHARs*), which is the difference between the buy-and-hold returns of the sample firm and the control firm of similar size and book-to-market ratio. Column (1) presents the regression against market optimism (*OPT5yav*). Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period using the five-year moving average detrending technique on market P/E and the Spread. Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayTop3Short*, *RelPayTop3Long* and *RelPayTop3Total*) and CEO pay slice (*CPSPayTop3Short*, *CPSPayTop3Long* and *CPSPayTop3Total*). CEO relative pay is the ratio of CEO pay over the average pay of the top three executives. CEO pay slice is the ratio of CEO pay over the total pay of the top three executives. Variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.5.2.2 Alternative Takeover Premium Calculation

In the previous analysis reported in Section 6.1, takeover premium is calculated as the difference between the offer price and the target share price on an unaffected date which is 60 days prior to the announcement, divided by the pre-takeover share price, expressed in percentage. In this section, takeover premium is recalculated based on the target share price 30 days prior to announcement. Table 6.27 reports the univariate evidence and Table 6.28 summarises the findings of the multivariate analysis.

The results reported in Table 6.27 are similar to that revealed in Table 6.1. It is observed that the takeover premiums based on target share price 30 days prior to the announcement date are higher for deals initiated in high market optimism (30.46%) compared to those in low optimism periods (24.94%). The mean (median) difference is significant at the 10% (5%) level. Panel B and Panel C of Table 6.27 report the takeover premiums offered by CEOs who are paid a high and low pay disparity. It can be seen that higher premiums are offered to target shareholders by CEOs who receive high relative pay and high CEO pay slice in the short-term component and the total pay. The mean and median difference is significant in three out of the four measures, which is similar to the results recorded in Table 6.1. The lower premiums offered by CEOs with high pay disparity in the long-term component also follow the pattern previously reported.

In Table 6.28, the sign of all coefficients is unchanged compared to that reported in Table 6.3 but the magnitude of coefficients become smaller with only three of them remaining significant. In particular, conducting a deal in high market optimism is associated with an increase in premium of 8.96% compared to that of deals announced in low market optimism. CEOs who earn high *RelPayTotal*, *CPSShort* and *CPSTotal* increase the premium by 5.47% to 6.51%. In general, the main findings are robust when takeover premium is redetermined using 30 days prior to announcement as the unaffected date.

Table 6.27 Takeover Premium 30 Days Prior to Announcement: Univariate Evidence

	Obs	Mean(%)	Median(%)	Mean Difference		Median Difference	
				t-stat	p-value	Z-stat	p-value
Panel A: High Optimism vs Low Optimism							
High Optimism	231	30.46	27.5	1.8265	0.0685	2.161	0.0307
Low Optimism	192	24.94	22.03				
Total	423	27.95	24.44				
Panel B: High RelPay vs Low RelPay (CEO compensation/Average compensation of the board)							
Short-term Pay							
High	178	30.77	24.90	1.5950	0.1115	1.462	0.1436
Low	245	25.91	23.28				
Total	423	27.95	24.44				
Long-term Pay							
High	104	25.91	22.59	-1.8674	0.0631	-1.938	0.0527
Low	142	33.31	29.25				
Total	246	30.18	24.94				
Total Pay							
High	196	30.84	24.97	1.7865	0.0747	1.717	0.0860
Low	227	25.46	23.26				
Total	423	27.95	24.44				
Panel C: High CPS vs Low CPS (CEO compensation/Total compensation of the board)							
Short-term Pay							
High	194	31.42	25.70	2.1275	0.0340	2.069	0.0386
Low	229	25.02	23.22				
Total	423	27.95	24.44				
Long-term Pay							
High	129	30.16	24.87	-0.0099	0.9921	-0.135	0.8922
Low	117	30.20	26.28				
Total	246	30.18	24.94				
Total Pay							
High	207	30.44	24.93	1.6177	0.1065	1.654	0.0981
Low	216	25.57	23.27				
Total	423	27.95	24.44				

This table shows the summary statistics of takeover premium. The sample consists of 423 takeover deals announced from 2002 to 2015 between listed bidders and targets on the ASX. *Premium* is the ratio of the offer price, minus the target share price 30 days prior to the announcement, divided by pre-takeover share price, expressed in percentage. Panel A presents the mean and median premium of takeovers announced in high and low *Optimism* months. Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure. Panel B and C present the mean and median value of takeover premiums announced by CEOs with high and low pay disparity, measured by *RelPay* and *CPS*, in short-term compensation, long-term compensation and total compensation. *RelPay* is the ratio of CEO pay over the average pay of other directors on the board. *CPS* is the ratio of CEO pay over the total pay of all directors on the board. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity. Bold figures indicate the significant difference at the level of 10% or better.

Table 6.28 Takeover Premium 30 Days Prior to Announcement: Multivariate Analysis

	(1) OPT	(2) RelPayShort	(3) RelPayLong	(4) RelPayTotal	(5) CPSShort	(6) CPSLong	(7) CPSTotal
OPT	8.9584** (2.16)						
RelPayShort		4.5878 (1.41)					
RelPayLong			-5.6734 (-1.32)				
RelPayTotal				5.8440* (1.79)			
CPSShort					6.5120** (2.00)		
CPSLong						1.2803 (0.30)	
CPSTotal							5.4728* (1.68)
RelativeSize	-3.0170*** (-2.66)	-2.8897** (-2.54)	-5.6535*** (-3.60)	-2.8109** (-2.47)	-2.9120** (-2.57)	-5.4408*** (-3.46)	-2.9058** (-2.56)
TargetROA	-0.7752 (-0.26)	-0.8523 (-0.28)	-2.3453 (-0.68)	-0.6103 (-0.20)	-0.5889 (-0.20)	-2.0575 (-0.60)	-0.6399 (-0.21)
BidderROA	17.2335 (1.30)	18.6481 (1.40)	0.6143 (0.03)	18.2997 (1.38)	18.6310 (1.40)	-2.3608 (-0.13)	18.5392 (1.40)
BidderLEV	-2.6299 (-1.35)	-2.9651 (-1.52)	-1.7211 (-0.70)	-3.0628 (-1.57)	-2.9979 (-1.54)	-1.8642 (-0.75)	-3.1581 (-1.61)
Diversification	-6.1212 (-1.64)	-6.2058* (-1.66)	-9.4699* (-1.75)	-5.9635 (-1.59)	-6.1433 (-1.65)	-8.6385 (-1.58)	-5.9853 (-1.60)
HostileBid	1.1358 (0.31)	0.5572 (0.15)	-2.5239 (-0.47)	0.4371 (0.12)	0.4315 (0.12)	-2.2604 (-0.42)	0.4260 (0.12)
CashPayment	-0.4319 (-0.11)	0.0623 (0.02)	-8.4611 (-1.53)	0.0425 (0.01)	0.0165 (0.00)	-8.1110 (-1.47)	-0.1670 (-0.04)
	-6.1588	-5.6080	-5.0044	-5.2308	-5.6778	-5.6525	-5.5802

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OPT	RelPayShort	RelPayLong	RelPayTotal	CPSShort	CPSLong	CPSTotal
CompetingBid							
RevisedBid	(-1.52) 7.6763* (1.95)	(-1.38) 8.1142** (2.06)	(-0.95) 12.3937** (2.27)	(-1.29) 8.0435** (2.05)	(-1.40) 8.1419** (2.07)	(-1.06) 12.4361** (2.27)	(-1.38) 8.1613** (2.08)
BoardSize	-0.9235 (-1.32)	-0.9728 (-1.39)	-1.3039 (-1.31)	-0.9991 (-1.43)	-1.0652 (-1.52)	-1.2651 (-1.27)	-1.0344 (-1.48)
InsiderRatio	-7.4302 (-0.72)	-3.5350 (-0.33)	-10.9334 (-0.78)	-1.6769 (-0.16)	-0.9306 (-0.09)	-4.0334 (-0.29)	-1.0001 (-0.09)
CEODuality	-2.4536 (-0.42)	-3.2758 (-0.56)	-1.6378 (-0.20)	-3.1955 (-0.55)	-3.7709 (-0.65)	-4.0986 (-0.49)	-3.5308 (-0.61)
CEOTenure	-0.0000 (-0.06)	-0.0001 (-0.08)	-0.0007 (-0.72)	-0.0001 (-0.14)	-0.0001 (-0.08)	-0.0006 (-0.57)	-0.0001 (-0.14)
CEOOwnership	0.0688 (0.69)	0.0937 (0.93)	0.0641 (0.44)	0.0988 (0.98)	0.0793 (0.80)	0.0733 (0.50)	0.0865 (0.87)
Ind. Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	32.3822*** (2.92)	35.8346*** (3.28)	45.2552* (1.96)	35.1186*** (3.23)	33.4807*** (3.04)	42.8671* (1.86)	34.8581*** (3.18)
<i>N</i>	423	423	246	423	423	246	423
<i>R</i> ²	0.1501	0.1442	0.2243	0.1469	0.1487	0.2176	0.1460

This table shows the results of the OLS regressions of takeover premium on market optimism, CEO pay disparity, bidder and target financial specifics, deal characteristics and bidder corporate governance. The sample consists of 423 transactions announced from 2002 to 2015 between listed targets and bidders on the ASX. *Premium* is the ratio of the offer price, minus the target share price 30 days prior to the announcement, divided by pre-takeover share price, expressed in percentage. Column (1) presents the regression against market optimism (*OPT*). Based on data from 1997 to 2015, each month from January 2002 to December 2015 is identified to be in a high optimism period if its actual detrended market P/E is higher than the expected value. Alternatively, it is classified to be a low optimism period if its actual detrended market P/E is lower than the expected figure. Columns (2) to (7) present the regressions against high and low CEO pay disparity, measured by CEO relative pay (*RelPayShort*, *RelPayLong* and *RelPayTotal*) and CEO pay slice (*CPSPayShort*, *CPSPayLong* and *CPSPayTotal*). CEO relative pay is the ratio of CEO pay over the average pay of other directors on the board. CEO pay slice is the ratio of CEO pay over the total pay of all directors on the board. High and low CEO pay disparity is defined by taking the residual from the CEO pay disparity regression. A positive residual is categorised as high CEO pay disparity, and a negative residual equivalent to low CEO pay disparity. Control variables are defined in Appendix E. *t* statistics in parentheses. Bold figures indicate the statistical significance at the 10% level or better, denoted by the asterisk as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.6 CHAPTER SUMMARY

This chapter discusses the impact of market optimism and CEO pay disparity on takeover premium and bidder performance surrounding announcement and in the one-year and two-year post-takeover periods. Interaction analyses are conducted to investigate the impact of CEO pay disparity when CEOs make takeover decisions in different market conditions. A number of robustness tests are run to prove that the main findings are not sensitive to sample selection bias and different measures of variables. Additionally, this chapters discusses the relevance of different theories with the results revealed from the present sample. Table 6.29 summarises the acceptance and rejection of hypotheses.

Table 6.29 The Acceptance or Rejection of Hypotheses

Hypothesis	Description	Result
<i>H_{1a}</i>	There is an association between market optimism and takeover premium	Fully supported
<i>H_{1b}</i>	There is an association between CEO pay disparity and takeover premium	Partially supported
<i>H_{2a}</i>	Market optimism is related to announcement returns of bidders	Fully supported
<i>H_{2b}</i>	CEO pay disparity is related to announcement returns of bidders	Rejected
<i>H_{3a}</i>	Market optimism is related to long-term post-takeover returns of bidders	Rejected in one-year BHARs; Fully supported in two-year BHARs
<i>H_{3b}</i>	CEO pay disparity is related to long-term post-takeover returns of bidders	Fully supported
<i>H_{4a}</i>	CEO pay disparity is related differently to takeover premium in different market conditions	Partially supported
<i>H_{4b}</i>	CEO pay disparity is related differently to announcement returns of bidders in different market conditions	Partially supported
<i>H_{4c}</i>	CEO pay disparity is related differently to long-term post-takeover returns of bidders in different market conditions	Partially supported

The takeover premium analysis finds that acquiring firms pay higher bid premiums in high market optimism, and CEO pay disparity in the short-term component and total compensation are found to be positively related to takeover premium. Findings in the takeover premium analyses support *Hypothesis H_{1a}* that there is a statistically positive and significant association between market optimism and

takeover premium; and partially support *Hypothesis H_{1b}* on the association between CEO pay disparity and takeover premium in the short-term compensation and total compensation categories.

The bidder announcement returns investigation reveals that the bidding firms earn abnormal announcement returns if the deals are conducted in high market optimism. There is not enough evidence on the relationship between CEO pay disparity and bidding firm announcement returns. This finding supports *Hypothesis H_{2a}* that there is a statistically significant association between market optimism and bidder returns surrounding announcement. However, *Hypothesis H_{2b}* on the association between CEO pay disparity and bidder announcement returns is not supported.

The examination of bidder long-term returns shows that market optimism is negatively related to the two-year post-takeover returns of the acquiring firms. Contrary to previous research in the US, this research finds that CEO pay disparity is positively associated with acquirer performance in the long term. These findings support *Hypothesis H_{3a}* that there is a negative association between market optimism and bidder long-term performance; and *Hypothesis H_{3b}* that there is a positive association between CEO pay disparity and bidder long-term performance.

On the effects of the interaction between market optimism and CEO pay disparity, this study finds that in high market optimism, CEOs with high pay disparity in the short-term component and total pay offer an economically significant higher premium. This supports *Hypothesis H_{4a}* that CEO pay disparity is related differently to takeover premium in different market conditions. This study further finds that takeovers conducted in high market optimism and by CEOs who receive high pay disparity in the long-term category generate significant higher announcement returns to bidders. Therefore, *Hypothesis H_{4b}* that CEO pay disparity is related differently to announcement returns of bidders in different market conditions is supported. Finally, the investigation on the interaction effects on bidder long-term returns indicates that takeovers announced in high market optimism and by CEOs with low pay disparity in the short-term component and total pay are associated with significant

underperformance of the acquiring firms. This supports *Hypothesis H_{4c}* that CEO pay disparity is related differently to bidder long-term returns in different market conditions. Overall, this research finds that market optimism positively impacts takeover premiums and bidder announcement returns but negatively relates to returns of the acquiring firms in the long term. These findings support the *market misvaluation theory*, which argues that optimistically irrational investors create market mispricing while rational managers of the bidding firms have the ability to time the market and take advantage of investor sentiment (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). In this circumstance, CEOs have a tendency to offer higher premiums to lock in deals and to benefit from the upward movement of stock prices, which results in positive returns surrounding announcement (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng, 2006; Dong et al., 2006). However, market correction will happen in the long term, which leads to significant loss for the shareholders of the bidding firms (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Dong et al., 2006).

On the impact of CEO pay disparity, this study finds that CEOs who earn high pay disparity offer higher premiums to target shareholders. There is not enough evidence for the impact CEO pay disparity on bidder announcement returns; however, significant return improvement to shareholders of the acquiring firms in the one-year and two-year post-takeover periods is observed. The high premiums offered by CEOs who receive high pay disparity are not found to harm the post-takeover performance of the acquiring firms. These findings support the *efficient contracting theory*, which establishes that CEO pay disparity reflects the supply and demand of the labour market. Moreover, the CEO pay package is structured to reward CEOs for their skills and efforts, to align the interests of the agent and principal, and to reduce monitoring costs (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979). As a result, it may be that CEOs of acquiring firms who are paid relatively higher than other directors have superior skills in analysing the transactions. They offer appropriate premiums, which, if necessary, may be higher than the premiums that CEOs with low pay discrepancy offer. Their decisions may not be responded to favourably by the market surrounding the announcement date but they will become value-enhancing in the long term. Table 6.30 summarises the relevance of theories.

Table 6.30 The Relevance of Theories

	Takeover Premium			Announcement Returns			Long-term Returns		
	Theory	Result	Implication	Theory	Result	Implication	Theory	Result	Implication
Optimism									
Neoclassical	+	+	☑	+	+	☑	+	-	☒
Market Misvaluation	+	+	☑	+	+	☑	-	-	☑
CEO Pay Disparity									
Managerial Power	+	+	☑	-	No effect	Not yet concluded	-	+	☒
Efficient Contracting	No prediction	+	Not yet concluded	+	No effect	Not yet concluded	+	+	☑

Chapter 7: Conclusion

7.1 MAJOR CONCLUSIONS

7.1.1 The Acceptance or Rejection of Hypotheses

7.1.1.1 The Impact of Market Optimism and CEO Pay Disparity on Takeover Premium

It is proposed in *Hypothesis H_{1a}* that there is an association between market optimism and takeover premium. The univariate and multivariate analyses fully support the acceptance of *Hypothesis H_{1a}* by showing the significant mean and median difference tests and a statistically significant and positive association between market optimism and takeover premium. The findings suggest that acquiring firms pay higher bid premiums in high market optimism.

In *Hypothesis H_{1b}*, it is postulated in that there is an association between CEO pay disparity and takeover premium. The acceptance of *Hypothesis H_{1b}* cannot be fully supported due to inconsistent findings across the three pay categories. The univariate and multivariate analyses in the short-term pay and the total pay show that CEO pay disparity is related to takeover premium. Both the mean and median difference tests and the coefficient correlation of CEO pay disparity in the short-term and total pay are significantly positive. This indicates that CEOs with high pay disparity in the short-term component and the total pay offer a higher premium to target shareholders. However, there is not enough evidence on the association between CEO pay disparity in the long-term category with takeover premium. There is only one (out of four) mean and median difference test that is significant, whereas the coefficient of CEO long-term pay disparity in the multivariate analysis is negative and insignificant. This

finding suggests that for CEOs with high pay disparity in the long-term pay, there is not enough evidence that they will pay a lower premium.

7.1.1.2 The Impact of Market Optimism and CEO Pay Disparity on Bidder Performance

With regards to *Hypothesis H_{2a}*, it is anticipated that market optimism is related to the announcement returns of bidders. The univariate analysis reports the statistically positive mean and median difference tests whereas a positive and significant coefficient of market optimism is observed in the regression output. The analysis of bidder announcement returns reveals that the bidding firms earn abnormal announcement returns if the deals are conducted in high market optimism. Therefore, *Hypothesis H_{2a}* is fully supported.

In contrast, *Hypothesis H_{2b}* that CEO pay disparity is related to the announcement returns of bidders is not supported. There is only one (out of twelve) mean and median difference test that is significant, whereas the coefficients of CEO pay disparity in all categories are insignificant. These findings suggest that there is not enough evidence that takeovers conducted by CEOs with high pay disparity benefit or destroy shareholder wealth surrounding announcement. The lack of empirical support for the association between CEO pay disparity and bidder announcement returns results in the rejection of *Hypothesis H_{2b}*.

It is postulated in *Hypothesis H_{3a}* that there is an association between market optimism and bidder long-term returns. Although the univariate analysis on the one-year post-takeover returns of the acquiring firms reports insignificant mean and median difference tests, the two-year returns investigation reveals significant results. A similar picture is found in the multivariate analysis with the coefficient of market optimism insignificantly negative in the one-year post-takeover returns regressions and significantly negative in the two-year post-takeover returns models. It shows that conducting a deal in high market optimism may not have a significant impact on the one-year post-takeover returns but harms shareholder wealth in the two-year post-takeover period. The negative and significant impact of market optimism on bidder

returns over the two-year post-takeover period supports *Hypothesis H_{3a}* that there is a negative association between market optimism and bidder long-term performance.

Hypothesis H_{3b} predicts that CEO pay disparity has an association with bidder long-term returns. The acceptance of *Hypothesis H_{3b}* is partially supported by the significant results revealed in the short-term component and total pay. It is shown in the univariate analysis that the bidding firms who pay their CEO a wider gap in the short-term and total pay categories earn significantly higher returns in both the one-year and two-year post-takeover periods. The multivariate analysis further reveals the positive and significant coefficients of CEO pay disparity in the short-term and total pay, suggesting that CEO pay disparity in the short-term and total pay categories is positively associated with acquirer long-term performance. However, the impact of CEO pay disparity in the long-term component is found to be negative and insignificant, resulting in the partial acceptance of *Hypothesis H_{3b}*.

7.1.1.3 The Interaction Between Market Optimism and CEO Pay Disparity and its Impact on Takeover Premium and Bidder Performance

Hypothesis H_{4a} proposes that CEO pay disparity is related differently to takeover premium in different market conditions. This hypothesis is partially supported in this study by showing that in high market optimism, CEOs with high pay disparity in short-term component and total pay offer an economically significant higher premium.

Hypothesis H_{4b} postulates that CEO pay disparity is related differently to announcement returns of bidders in different market conditions. This study finds that takeovers conducted in high market optimism and by CEOs with high pay disparity in the long-term category generate significant higher announcement returns to bidders. Therefore, *Hypothesis H_{4b}* is partially supported.

Finally, *Hypothesis H_{4c}* puts forward that CEO pay disparity is related differently to bidder long-term returns in different market conditions. The multivariate analysis finds that takeovers announced in high market optimism and by CEOs who earn low pay disparity in the short-term component and the total pay are associated with significant underperformance of the acquiring firms. This thesis further observes that

takeover deals conducted in low market optimism and by CEOs with high pay disparity in the long-term component outperform their counterparts. Therefore, *Hypothesis H_{4c}* is accepted.

1.1.1 The Relevance of the Theories

Based on the acceptance or rejection of the hypotheses, this research finds contradictory evidence on the implication of the neoclassical theory and the managerial power theory, whereas the market misvaluation theory and the efficient contracting theory are largely supported by the current sample.

The *neoclassical theory* is supported in the announcement return analysis, which reveals that takeovers conducted in high market optimism generate better returns to shareholders of the acquiring firms. However, the positive impact of market optimism on takeover premium and its negative association with bidder long-term returns are contradictory to the neoclassical theory's position. Therefore, the neoclassical theory is not fully supported based on the sample in the present study. In the same vein, there is evidence to support the *managerial power theory* in the takeover premium analysis. It is reported that CEOs who earn higher CEO pay disparity offer higher premiums. Nevertheless the insignificant association of CEO pay disparity on announcement returns and its positive impact on bidder long-term returns are not proposed by the managerial power theory.

This research support the *market misvaluation theory* by revealing that market optimism positively impacts takeover premiums and bidder announcement returns but negatively relates to long-term returns of the acquiring firms. These findings can be explained by the market misvaluation theory that the optimistically irrational investors create market mispricing while rational managers of the bidding firms have the ability to time the market and take advantage of investor sentiment (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). In this circumstance, CEOs have the tendency to offer higher premiums to lock in deals and to benefit from the upward movement of stock prices, which results in positive returns surrounding announcement (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Ang and Cheng,

2006; Dong et al., 2006). However, market correction will happen in the long term, which leads to significant loss for the shareholders of the bidding firms (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Dong et al., 2006).

On the impact of CEO pay disparity, this study observes that higher premiums are offered to target shareholders by CEOs with high pay disparity. An insignificant impact of CEO pay disparity on announcement returns is reported. However, there is an impact of CEO pay disparity on the acquiring firm performance in the one-year and two-year post-takeover periods. There is no evidence that the high premiums offered by CEOs with high pay disparity harm shareholder wealth. These findings support the *efficient contracting theory*, which establishes that CEO pay disparity reflects the supply and demand of the labour market. Moreover, CEO pay package is structured to reward CEOs for their skills and efforts, to align the interests of the agent and the principal and to reduce the monitoring cost (Jensen and Meckling, 1976; Mirrlees, 1976b; Harris and Raviv, 1979). As a result, it may be that CEOs of acquiring firms who are paid relatively higher than other directors have superior skills in analysing the transactions. They offer appropriate premiums, which, if necessary, may be higher than the premiums that CEOs with low pay discrepancy offer. Their decisions may not be responded to favourably by the market surrounding the announcement date but they will become value-enhancing in the long term.

7.2 IMPLICATIONS

The present study could have several practical implications for regulators, investors, managers and potential acquiring firms.

7.2.1 Regulators and Professional Bodies

Firstly, given the significance of M&As to the economy and the recent surge of this market, an empirical analysis into takeover decisions, takeover premium and bidder performance may provide an insight for relevant professional bodies in implementing their policies. The key takeovers regulators are the Australian Securities and Investments Commission (ASIC) and the Takeovers Panel. ASIC has general

supervision of the Corporations Act, including the takeovers rules, and has the power to modify and grant relief from the takeovers rules. The Takeovers Panel is a peer review body, whose main role is to resolve disputes relating to takeover bids. It has broad power to declare circumstances “unacceptable” and to make remedial orders.

Secondly, incorporating the optimism of the stock market and the bond market and investigating its impact on the M&A market, findings in this study may help the RBA and commercial banks to set their interest policy. This study proves that the change in the Spread between the Commercial and Industrial Loan Rate and the Federal Funds Rate has an impact on takeover activity. Therefore, the interest policy can be set to achieve macro-economic objectives at the national level or to attract borrowers at the individual bank level.

Thirdly, appearing to be the first study to examine high and low CEO pay disparity in Australia, this study can be valuable for regulatory bodies to review the compensation and corporate governance regulation. ASIC acts as Australia’s corporate regulator to enforce and regulate company and financial services laws that protect consumers, investors and creditors. ASX Compliance, which is a subsidiary of ASX, is responsible for monitoring and enforcing ASX listed companies’ compliance with ASX operating rules and promotes standards of corporate governance among listed companies. The ASX Corporate Governance Council has developed Corporate Governance Principles and Recommendations that are designed to promote investor confidence and to assist ASX listed entities in meeting stakeholder expectations. Apart from that, the Australian Institute of Company Directors provides guidelines on the process for determining executive remuneration and the terms and structure of executive contracts and compensation packages. Findings in this research suggest that the Australian CEO pay package reflects the supply and demand of the labour market, rewards CEOs for their skills and efforts and reduces the monitoring cost. Moreover, this research finds some evidence that CEOs with high pay disparity in the long-term compensation benefit shareholder wealth. Therefore, it is recommended to the authority bodies to promote increasing this pay component across Australian firms.

7.2.2 Potential Acquiring Firms

The evidence found in this research on the positive impact of CEO pay disparity on bidder long-term performance may be a reference for Australian firms to set out their managerial recruitment and compensation policy. It is worth noting that the gap between CEO pay to that of other directors within and outside the organisation may reflect the supply and demand of the labour market, may be an indicator of CEO skills and efforts and may eventually benefit the shareholders. Moreover this research promotes the increasing use of long-term payment as an efficient tool to better align the interests of the agent and principal and to reduce the monitoring cost.

7.2.3 Investors

Two of the main conclusions that may be applicable to investors in this thesis are the possible better announcement returns from takeovers initiated in high market optimism and the promising performance in the long term from the transactions conducted by CEOs with high pay disparity. Therefore, it would be advisable for investors to follow the market in order to obtain the highest possible gains from positive market sentiment. However, based on the evidence revealed in this thesis, it is recommended that investors should realise those gains before the market correction. For investors with long-horizon investment strategy, analysing takeover deals processed by CEOs with high pay disparity may provide some clue for their investment decisions. This research finds that these transactions may not have a favourable reaction from the market at the time of announcement but they may become value-generating in the long term.

7.3 LIMITATIONS AND FUTURE RESEARCH

While methodology in this research has been justified to account for the specific features of the Australian setting, there are some limitations in this study:

1. The sample in this empirical study consists of takeovers announced between listed targets and bidders on the ASX. Transactions among private companies are excluded. However, it should be noted that the private takeover market in

Australia is relatively large (Shams et al., 2013). Therefore, including private transactions may increase the generalisability of a future research.

2. The sample period is set from 2002 to 2015 due to the availability of compensation data, which needs to be available one year prior to the announcement.¹⁵ It is possible that analysing the Australian takeover market for a longer period may lead to different findings.
3. CEO pay disparity is used as proxy for CEO characteristics. Other proxies can be used in future research such as CEOs' vested stock options, CEOs' stock purchase, earning forecast, media coverage and executive language in official speeches and announcements.
4. Bidder performance is examined based on stock announcement returns and the one-year and two-year post-takeover returns. Accounting performance can be used in future research.
5. A range of variables is included to control for potential influencers of takeover decisions apart from market optimism and CEO pay disparity. It is possible that other factors not used in this study such as institutional ownership, CEO qualification, CEO experience and CEO network may offer alternative explanations.

These interesting issues are beyond the scope of this study, but may be pursued in future research.

¹⁵ Compensation of Australian firms is provided by the SIRCA database from 2001 and by the Connect 4 Boardroom database from 2004.

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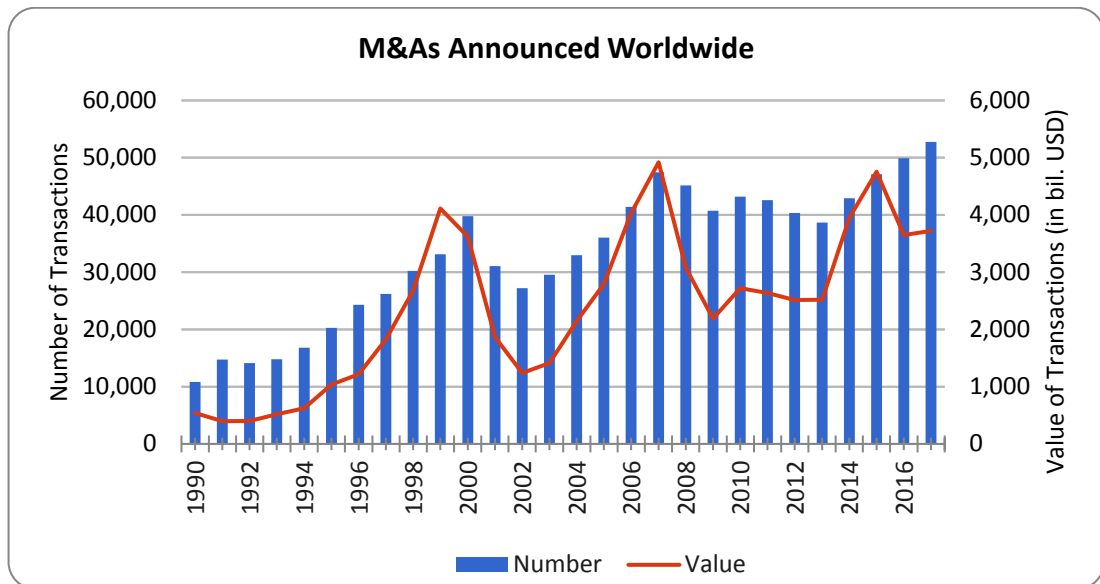
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Appendices

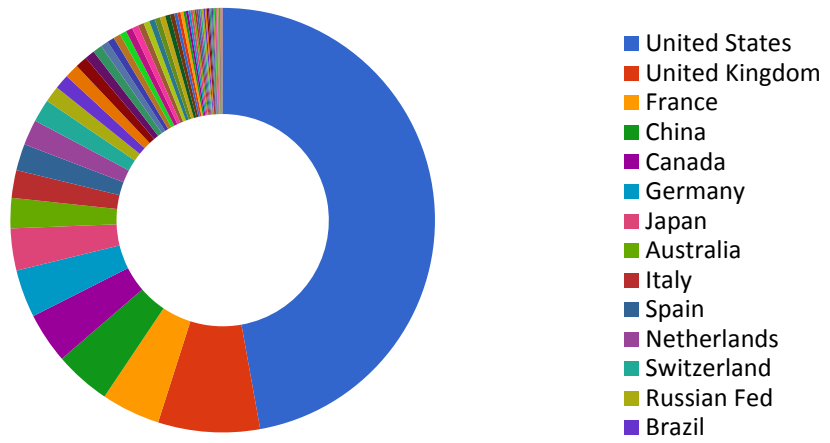
Appendix A

M&As Announced Worldwide¹⁶

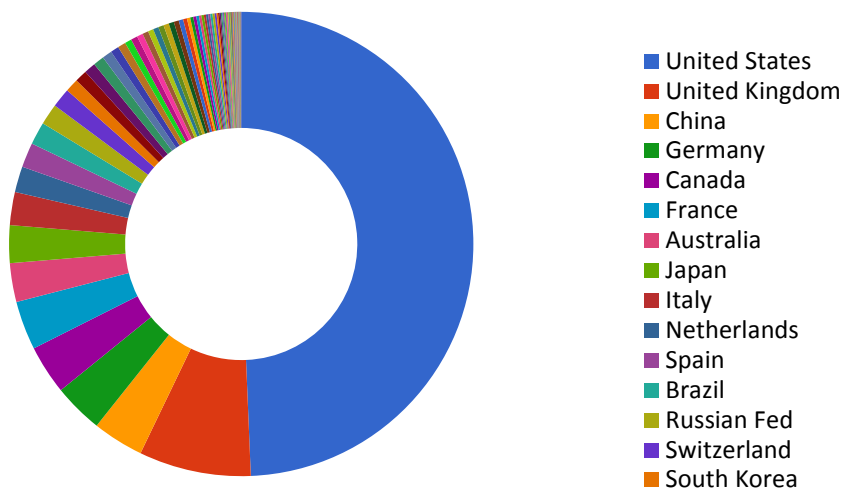


¹⁶ Source: Thomson Financial, Institute for Mergers, Acquisitions and Alliances analysis.

M&As Announced Worldwide by Acquirer Nation 1990–2017

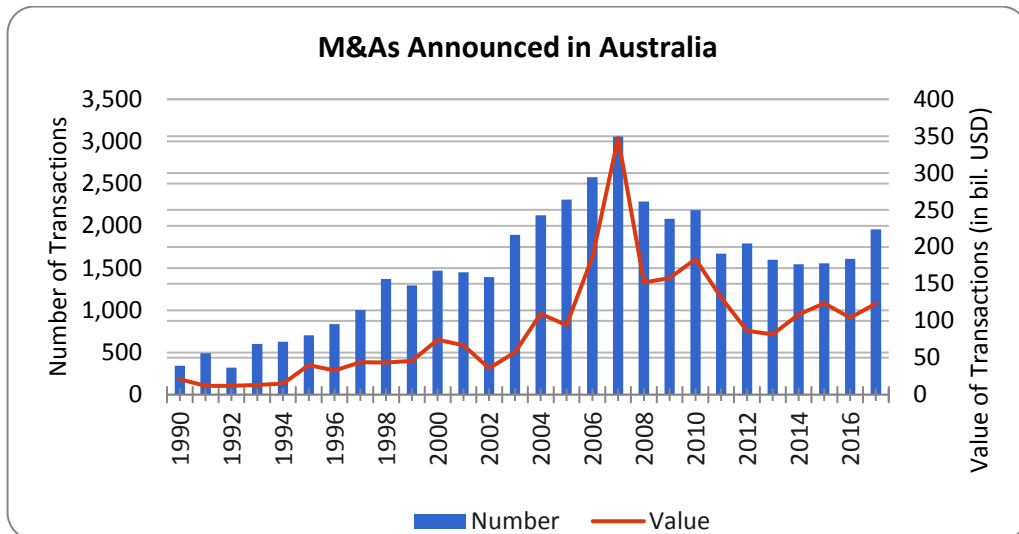
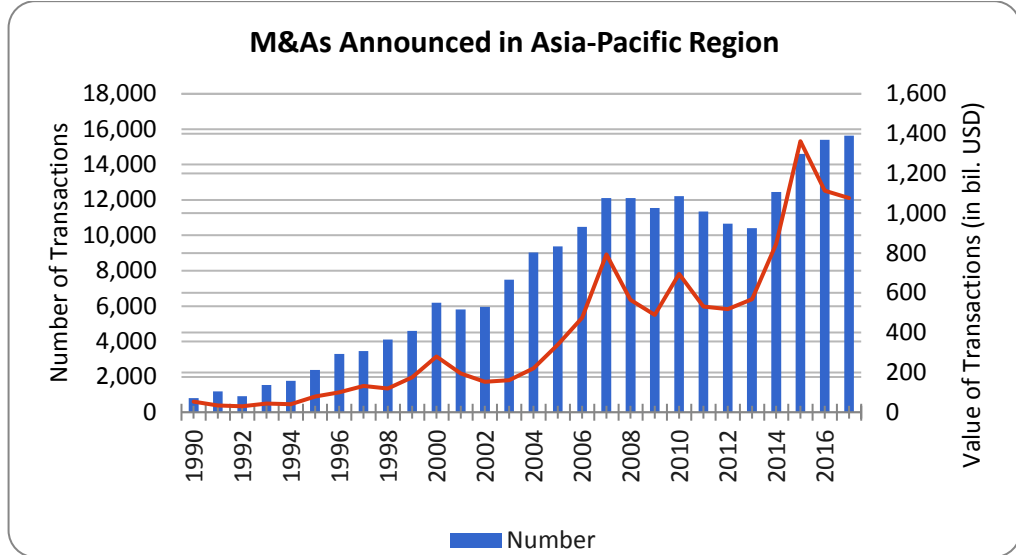


M&As Announced Worldwide by Target Nation 1990–2017



Appendix B

M&As Announced in the Asia-Pacific Region and Australia¹⁷



¹⁷ Source: Thomson Financial, Institute for Mergers, Acquisitions and Alliances analysis.

Appendix C

Definition of Variables: Market Optimism Identification

Variables	Measures	Source
<i>DEAL</i>	Number of takeover deals in the final sample	Connect 4 Takeovers & Mergers; DatAnalysis; Zephyr
<i>MARKETP/E</i>	Monthly earnings weighted average of the P/E ratios of the components of All Ordinaries Index	Datastream
<i>RETURN</i>	Monthly return of the All Ordinaries Index, based on the current constituents	Datastream
<i>BUSRATE</i>	Weighted average interest rates on credit outstanding	RBA website: Table D8, Bank Lending to Business – Selected Statistics
<i>CASHRATE</i>	Interbank Overnight Cash Rate	RBA website: Table F1.1, Interest Rates and Yields – Money Market – Monthly
<i>SPREAD</i>	The difference between Bank Lending to Business Rates and Interbank Overnight Cash Rate	

Appendix D

Definition of Variables: CEO Pay Disparity Classification

Variables	Definition	Sources of Data
CEO Pay Disparity		
<i>RelPay</i>	The ratio of CEO pay in different compensation categories over the <i>average pay</i> of the directors on the board in the same compensation category, excluding CEO pay	SIRCA, Connect 4 Boardroom, annual reports
<i>CPS</i>	The ratio of CEO pay in different compensation categories over the <i>total pay</i> of the directors on the board in the same compensation category	SIRCA, Connect 4 Boardroom, annual reports
<i>IndMedRelPay</i>	The median CEO <i>RelPay</i> in the two-digit GICS industry codes	SIRCA, Connect 4 Boardroom, annual reports
<i>IndMedCPS</i>	The median <i>CPS</i> in the two-digit GICS industry codes	SIRCA, Connect 4 Boardroom, annual reports
	Cash compensation includes salary, director fees, bonus, superannuation, non-pecuniary benefits	SIRCA, Connect 4 Boardroom, annual reports
	Long-term compensation includes shares, stock options	SIRCA, Connect 4 Boardroom, annual reports
	Total compensation is the sum of salary, director fees, bonus, superannuation, non-pecuniary benefits, shares, stock options	SIRCA, Connect 4 Boardroom, annual reports
Financial Specifics		
<i>LogBookValue</i>	The natural logarithm of total assets	Datastream
<i>IndAdjTobinsQ</i>	Market value divided by the book value of assets	Datastream
<i>ROA</i>	Earnings before interest, depreciation, and amortisation, divided by total book assets	Datastream
<i>Leverage</i>	Total debt divided by total asset	Datastream
<i>ROAGrowth</i>	Current ROA divided by ROA in the previous year	Datastream
<i>SalesGrowth</i>	Sales in the current year divided by sales in the previous year	Datastream
<i>Capex/Assets</i>	The ratio of capital expenditures to total assets	Datastream
Corporate Governance Characteristics		
<i>BoardSize</i>	The number of directors on the board	Connect 4 Boardroom, annual reports
<i>InsiderRatio</i>	The ratio of the number of executive directors on the board to total directors	Connect 4 Boardroom, annual reports
<i>CEODuality</i>	A dummy variable that takes the value of one if the CEO also acts as the chairman, and take the value of zero otherwise.	Connect 4 Boardroom, annual reports

Appendix E

Definition of Variables: Premium, CAR, BHAR OLS Models

Variables	Definition	Sources of Data
Market Optimism		
<i>OPT</i>	A dummy variable that takes the value of one if the month's modified detrended market PE (control for Spread and its previous quarter lag term) is higher than the expected value, and take the value of zero otherwise.	RBA, Datastream
<i>OPT5yave</i>	A dummy variable that takes the value of one if the month's modified detrended market PE (control for the five-year moving average Spread) is higher than the expected value, and take the value of zero otherwise.	RBA, Datastream
<i>HighOPT</i>	A dummy variable that takes the value of one if a month's actual detrended market P/E is higher than the expected value.	RBA, Datastream
<i>LowOPT</i>	A dummy variable that takes the value of one if a month's actual detrended market P/E is lower than the expected value.	RBA, Datastream
CEO Pay Disparity		
<i>RelPay</i>	The ratio of CEO pay in different compensation categories over the <i>average pay</i> of the directors on the board in the same compensation category, excluding CEO pay	SIRCA, Connect 4 Boardroom, annual reports
<i>CPS</i>	The ratio of CEO pay in different compensation categories over the <i>total pay</i> of the directors on the board in the same compensation category	SIRCA, Connect 4 Boardroom, annual reports
<i>RelPayTop3</i>	The ratio of CEO pay in different compensation categories over the <i>average pay</i> of the top three executives in the same compensation category, excluding CEO pay	SIRCA, Connect 4 Boardroom, annual reports
<i>CPSTop3</i>	The ratio of CEO pay in different compensation categories over the <i>total pay</i> of the top three executives in the same compensation category	SIRCA, Connect 4 Boardroom, annual reports
<i>HighRelPay(CPS)</i>	A dummy variable that take the value of one if the residual from the CEO pay disparity regression is positive (negative)	SIRCA, Connect 4 Boardroom, annual reports
<i>LowRelPay(CPS)</i>	A dummy variable that take the value of one if the residual from the CEO pay disparity regression is negative	SIRCA, Connect 4 Boardroom, annual reports
	Cash compensation includes salary, director fees, bonus, superannuation, non-pecuniary benefits	SIRCA, Connect 4 Boardroom, annual reports

Variables	Definition	Sources of Data
	Long-term compensation includes shares, stock options	SIRCA, Connect 4 Boardroom, annual reports
	Total compensation is the sum of salary, director fees, bonus, superannuation, non-pecuniary benefits, shares, stock options	SIRCA, Connect 4 Boardroom, annual reports
Takeover premiums		
<i>Premium</i>	The ratio of the offer price, minus the target share price 60 days prior to the announcement, divided by pre-takeover share price, expressed in percentage.	Connect 4 Takeovers & Mergers; Datastream; Company announcement
<i>Premium30d</i>	The ratio of the offer price, minus the target share price 30 days prior to the announcement, divided by pre-takeover share price, expressed in percentage.	Connect 4 Takeovers & Mergers; Datastream; Company announcement
Bidder returns		
<i>CAR[-1, 1]</i>	The three-day cumulative abnormal returns to acquiring firms around the announcement date, calculated against the All Ordinaries Index using the modified market model.	Datastream
<i>BHAR1y</i>	The difference between the buy-and-hold one-year returns of the sample firm and the control firm of similar size and book-to-market ratio.	Datastream
<i>BHAR2y</i>	The difference between the buy-and-hold two-year returns of the sample firm and the control firm of similar size and book-to-market ratio.	Datastream
Financial Specifics		
<i>BidderMktCap</i>	Market value of the acquiring firms one month prior to announcement	Datastream
<i>TargetROA</i>	Earnings before interest, depreciation, and amortisation, divided by total book assets of the target firms.	Datastream
<i>BidderROA</i>	Earnings before interest, depreciation, and amortisation, divided by total book assets of the acquiring firms.	Datastream
<i>BidderLEV</i>	Total debt divided by total asset of the acquiring firms	Datastream
Deal Characteristics		
<i>DealValue</i>	Dollar value of the deal at time of announcement.	Connect 4 Takeovers & Mergers; Company announcement
<i>RelativeSize</i>	Deal value at time of announcement to the bidders' market value one month prior to announcement	Connect 4 Takeovers & Mergers; Datastream;

Variables	Definition	Sources of Data
		Company announcement
<i>Diversification</i>	A dummy variable that equals to one if bidder and target are from different industry, and take the value of zero otherwise.	Connect 4 Takeovers & Mergers; Datastream; Company announcement
<i>HostileBid</i>	A dummy variable that takes the value of one if the bid attitude is hostile, and take the value of zero otherwise.	Connect 4 Takeovers & Mergers; Company announcement
<i>CashPayment</i>	A dummy variable that equals to one if the deal is financed in cash, and equals to zero otherwise.	Connect 4 Takeovers & Mergers; Company announcement
<i>CompetingBid</i>	A dummy variable that takes the value of one if there are at least two acquirers making an offer to a target, and take the value of zero otherwise.	Connect 4 Takeovers & Mergers; Company announcement
<i>RevisedBid</i>	A dummy variable that takes the value of one if the offer price has been revised, and take the value of zero otherwise.	Connect 4 Takeovers & Mergers; Company announcement
<i>SuccessfulDeal</i>	A dummy variable that takes the value of one if the outcome of the offer is successful, and take the value of zero if a deal is unsuccessful or withdrawn.	Connect 4 Takeovers & Mergers; Company announcement

Corporate Governance Characteristics

<i>BoardSize</i>	The number of directors on the board	Connect 4 Boardroom, annual reports
<i>InsiderRatio</i>	The ratio of the number of executive directors on the board to total directors	Connect 4 Boardroom, annual reports
<i>CEODuality</i>	A dummy variable that takes the value of one if the CEO also acts as the chairman, and zero otherwise	Connect 4 Boardroom, annual reports
<i>CEOTenure</i>	The number of years since the CEO has been in the position.	Connect 4 Boardroom, annual reports
<i>CEOOwnership</i>	The ratio of ordinary shares owned by the CEO to the total number of ordinary shares outstanding, expressed in percentage.	Connect 4 Boardroom, annual reports

Appendix F

Definition of Variables: Heckman (1979) First-stage Probit Model

Variables	Definition	Sources of Data
Financial specifics		
<i>TobinsQ</i>	Market value divided by the book value of assets.	Datastream
<i>LogMrkCap</i>	The logarithm of the firms' market capitalisation.	Datastream
<i>CashFlow</i>	Net operating cash flow from operations minus capital expenditure scaled by total assets.	Datastream
<i>Leverage</i>	Total debt divided by total asset.	Datastream
<i>ROE</i>	Earnings before interest, depreciation, and amortisation, divided by equity.	Datastream
<i>CapacityUtilisation</i>	The deviation of firm's ratio of sales to book assets from the industry median.	Datastream
Corporate Governance Characteristics		
<i>BoardSize</i>	The number of directors on the board	Connect 4 Boardroom, annual reports
<i>InsiderRatio</i>	The ratio of the number of executive directors on the board to total directors	Connect 4 Boardroom, annual reports
<i>CEODuality</i>	A dummy variable that takes the value of one if the CEO also acts as the chairman, and take the value of zero otherwise.	Connect 4 Boardroom, annual reports
Industry specifics		
<i>IndustryTobinsQ</i>	The ratio of the industry's total market value of assets to its total book value of assets.	Datastream
<i>IndustryCashFlow</i>	The sum of cash flow across firms in the industry.	Datastream
<i>IndustryShock</i>	The absolute value of the deviation of industry one-year sales growth from the mean sales growth for the industry.	Datastream
<i>IndustryConcentration</i>	The natural logarithm of the sum of squared market shares (based on sales) calculated each year for each industry.	Datastream