Agency risks and the acquisition performance of Australian publicly listed acquirers

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Abstract
This paper investigates the extent to which agency risks and the acquirer’s mechanisms used to avoid these risks (i.e. board of directors, ownership structure and financial leverage) influenced the acquisition performance of Australian publicly listed acquirers during the period from 2003 to 2013 in the presence of mechanisms that encourage agency behaviour (i.e. free cash flows). The results suggest that the acquirer’s board size, insider and blockholder’s ownership have inverted ‘U-shaped’ non-linear relationships with cumulative abnormal returns around acquisition announcements, while blockholders’ ownership had a negative relationship with post-acquisition market returns. Board duality has a positive relationship with cumulative abnormal returns, while the level of financial leverage and free cash flow show a negative relationship. Overall, the results suggest that board size is the most important corporate governance mechanism in explaining the variance in acquirer’s short-term market returns.

1. Introduction

The interests of managers and shareholders might not always be aligned through managerial contracts (Mueller 1969; Jensen 1986; Shleifer and Vishny 1989; Beatty and Zajac 1994; Wright et al. 1996). Therefore, in running a company, managers may pursue their own interests rather than pursuing shareholder value maximisation (Jensen 1986; Morck, Shleifer and Vishny 1988). The managerial models of the firm proposed by Marris (1964) and Baumol (1967) argue that managers pursue growth at the expense of the welfare of shareholders. Management objectives and goals have been studied as a core construct in research on corporate acquisitions (e.g. Steiner 1975; Walter and Barney 1990; Agrawal and Knoeber 1996). Managers may pursue acquisitions in order to extract some financial or
psychological benefits associated with power and prestige attached to ‘empire-building’ (Marris 1964; Mueller 1969; Aggarwal and Samwick 2006; Ben-Amar and Andre 2006), generally by utilising free cash flows for non-positive net present value projects rather than redistributing these cash flows to shareholders (Jensen 1986). An agency problem may also manifest when the managers do not choose the project with considerable risk and the highest net present value because they prefer a project with less risk. Hubbard and Palia (1995) and Wright et al. (2002), among others, suggest that managers use acquisitions to reduce the risks related to their significant human and financial capital invested in the firm. To the extent that shareholders diversify their portfolios to offset the firm specific risk, they are less concerned if a firm takes risks (Berger and Ofek 1995; Denis, Denis and Sarin 1997).

Thus, acquisitions that do not present a potential for value creation may be undertaken to satisfy managerial objectives (Montgomery 1994). This possibility can be denoted as the agency risk of acquisition. The acquirer’s share price post-acquisition reflects such agency risks. To increase the value of the acquirer firm, the agency risks must therefore be reduced while taking into account the costs involved through a combination of contractual arrangements (usually involving compensation and incentives) and monitoring. This paper describes the agency risks that may influence the post-acquisition performance and the monitoring and interest alignment mechanisms used to avoid these risks in the presence of mechanisms that encourage agency behaviour. The research question addressed in this paper is how the cumulative abnormal returns of the Australian publicly listed acquirers during the period 2003-2013 was influenced by the agency risks present in the acquirer.

A limitation of the previous research comes from the lack of research on the influence of agency risks in mergers and acquisitions in an Australian context. Differences in the business environment, regulation culture and firm characteristics between Australia and the US, where the largest part of this research stream has been conducted, may produce particular effects for the firms involved. The motivation of this research is the need for a better understanding of the agency risks in acquisitions and their influence on post-acquisition performance.

The remainder of paper is organised as follows. Based on the existing literature, we develop our hypotheses in section 2. Section 3 describes the sample and research methodology. Section 4 presents the results, while section 5 concludes the paper.
2. Monitoring and interest alignment mechanisms and agency risk

Hambrick and Finkelstein (1987) argue that the degree of managerial discretion determines the impact of managers’ self-serving distortions on the strategic choices and outcomes. Various mechanisms for monitoring and interest alignment may limit managerial discretion. These mechanisms can discourage or prevent managers from pursuing goals that are in conflict with those of shareholders by bringing the threat of displacement, damaged reputation or wealth loss (La Porta et al. 2000). The extent to which value creation is associated with a merger or acquisition may depend on the existence of these mechanisms (Fama 1980; Weisbach 1993). The literature identifies various mechanisms that include: the market for managerial labour, the market for corporate control, the product market, managerial compensation, the board of directors, ownership structure and financial leverage (Gillan 2006).

If managers’ discretionary distortions can be captured by the managerial labour market, the threat of replacement of poorly performing managers is likely to be high. Moreover, managers competing in the managerial labour market possess reputation capital which may not allow them to find employment if they do not perform well in their role as agents (Lehn and Zhao 2006). The market for corporate control disciplines poorly performing managers by removing them from their positions (Mitchell and Lehn 1990; Gillan 2006). The managers’ suboptimal decisions may cause a decline in the market value of their firm’s shares and the firm may become a takeover candidate for bidders who believe they are capable of improving the management (Warner et al. 1988). According to Leibenstein (1966) and Hart (1983), managerial behaviour at the expense of shareholders is also constrained by the product market. Porter (1980) also gives some support to the notion that competitive forces constrain managers and Masulis, Wang and Xie (2007) found that acquirers operating in more competitive industries experience higher abnormal returns following acquisition announcements. It is important to note that all these market mechanisms are likely to be related to the industry affiliation of the acquirer. This paper will control for their influence by separating the effects of industry from the effects of the other monitoring mechanisms.

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1 Other mechanisms can contribute to the convergence of interests between managers and shareholders. Such mechanisms may include employees’ unions, regulation of capital markets, the implicit control of financial analysts in managing portfolios for institutional investors, journalists who may reveal managers’ corruptive practices of improper self-remuneration and pressure exerted by humanitarian or environmental associations that may discourage investment in particular companies. These mechanisms are mainly systemic and not company specific. Therefore, they cannot be tested when considering only a single market.
Managerial compensation can also influence the behaviour of managers in pursuing acquisitions. Datta, Iskandar-Datta and Raman (2001) documented a strong positive relationship between acquiring managers’ equity based compensation and merger performance. However, the lack of available data for the period under study due to disclosure limitations in Australia does not allow the examination of this mechanism in the context of this paper.²

The last three monitoring or interest alignment mechanisms mentioned above can be analysed in detail in the context of this paper—that is, the boards of directors, ownership structure and financial leverage. They may ensure that the decisions taken by the acquirer’s management with regard to mergers and acquisitions are in the best interests of the shareholders. However, the efficiency of these mechanisms designed to curtail managerial self-interest must be studied in the context of the mechanisms that may encourage self-interest pursuit and, thus, induce agency risk. The most highly researched of these mechanisms is free cash flow (Jensen 1986). Prior research has argued that the existence of free cash flow might increase the managers’ discretion in engaging in value-reducing acquisitions.

The remainder of this section examines in detail the potential influence on post-acquisition performance of the monitoring or interest alignment mechanisms in the acquirer, together with the agency risks induced by free cash flow, developing the research hypotheses of the paper.

2.1 Board of directors

The board of directors links shareholders and managers (Fama and Jensen 1983) and is one of the most researched monitoring mechanisms (e.g. Weisbach 1988; Dalton et al. 1998; Roberts, McNulty and Stiles 2005; Ghosh 2006). Researchers suggest that managerial opportunism can be constrained by the board of directors simply because directors are elected and paid by shareholders to represent their interests in corporate decision making and they can fire the managers who do not perform well (Weisbach 1988; Rosentein and Watt 1990; ²

² In Australia, since 1998, section 300A of the Corporations Act requires the detailed disclosure of the remuneration of all directors and the top five remunerated executives. However, according to the disclosure requirements imposed on Australian companies before 1998, the annual reports of Australian companies included only the remuneration received by directors. They were not required to disclose the amount of managerial compensation.
Shivdasani 1993). In the context of acquisitions, Lehn and Zhao (2006) found that CEOs who make bad acquisitions are more likely to be dismissed by the board of directors.

One of the widely discussed issues in the academic literature concerns how to appropriately structure the board of directors and to what extent the structure of the board may affect its ability to be an effective monitor, guide and decision maker or provider of resources and, thus, influence the performance of a company (Van den Berghe and Levrau 2004). In this respect, board size, board leadership duality and board composition are the main characteristics examined in academic research. As presented by Korn-Ferry (2002), during the period studied in this paper, the key features of Australian boards include a clear separation between the roles of the chief executive officer and the chairman and a predominance of non-executive directors on boards. These characteristics are different from those of the boards of directors in the US, where the majority of the studies on board structure have been performed and this difference was maintained over time. This paper tests board characteristics with regard to their potential for supporting or making major corporate decisions regarding mergers and acquisitions in the best interests of shareholders in the Australian context.

2.1.1 Board size

For many years, academics have examined the idea of size efficiency for the board of directors in terms of its influence on corporate strategy and performance. Some researchers have argued for a large number of directors, while others have put forward arguments for minimising the size of the board.

Larger boards may be better than small boards for corporate performance in general and for acquisitions in particular because it is relatively hard for a CEO to influence the decisions of a large numbers of board members; also, large boards have a range of expertise to help make better strategic decisions (Judge and Zeithaml 1992; Ocasio 1994; Golden and Zajac 2001; Kiel and Nicholson 2003; Ruigrok, Peck and Keller 2006). Thus, larger boards are more likely to fulfil their monitoring, advice and strategic functions. Larger boards may yield benefits from external networks and secure a broader resource base, thus fulfilling the access to resources function (Pfeffer 1973; Pfeffer and Salancik 1978; Pearce and Zahra 1992; Goodstein, Gautam and Boeker 1994).
Other researchers argue that large boards are less effective than small boards, especially with regard to the control/monitoring and advice and strategic functions (e.g. Jensen and Meckling 1976; Lipton and Lorsch 1992; Yermack 1996). Lipton and Lorsch (1992) and Jensen (1993) argue that large boards are less effective and are easier for the CEO to dominate. Mintzberg (1983) suggest that board members’ assessments of managers are more easily manipulated when boards are large and diverse. CEOs may gain advantages in power relations with board members through coalition building, the selective distribution of information and dividing and conquering (Alexander, Fennell and Halpern 1993). This view is complementary to the argument that smaller boards engender greater focus, participation and genuine interaction and debate (Firstenberg and Malkiel 1994). Another disadvantage of larger boards is that the large number of directors may increase the possibility of individual directors choosing to free ride and decrease their accountability and contribution to strategic decisions (Golden and Zajac 2001). When a board gets too large, it becomes difficult for it to coordinate and process problems. Hence, larger boards may have more difficulty making strategic decisions and, as a consequence, may become less involved in strategic decision making (Judge and Zeithaml 1992; Goodstein, Gautam and Boeker 1994; Yermack 1996).

In summary, a series of theoretical rationales suggests a linear relationship between board size and firm or acquisition performance but provides no consensus about the direction of this relationship. The empirical studies provide mixed evidence. Jensen (1993) suggested that there might be an ‘inverted U’ relationship between board size and performance that might explain those contradictory results obtained when considering a linear relationship. Following this suggestion, this paper predicts a non-linear relationship between board size and acquisition performance. At low levels of board size, the performance of the acquisition is likely to be low because the board cannot provide monitoring of the managers’ decisions and cannot provide enough knowledge and other resources that the firm may need to manage the acquisition process. The performance of the firm is likely to increase at higher levels of board size until the board size reaches a level that makes the coordination and other problems appear (Beiner et al. 2004). Therefore, this paperformulates the first hypothesis as follows:

**H1:** The acquirer’s board size has an ‘inverted U’ relationship with long-term post-acquisition performance.
2.1.2 Board leadership structure

Duality in the position of CEO and chairman of the board is a controversial issue in the literature on boards of directors (Rhoades, Rechner and Sundaramurthy 2001). The literature on board leadership structure encompasses two opposing theoretical perspectives—one that argues against and one that argues for board leadership duality. First, financial economists (e.g. Mace 1971; Mizruchi 1983) suggest that the board cannot effectively monitor the CEO when the functions of CEO and chairman of the board are performed by one person. They suggest that board leadership duality determines CEO entrenchment and a decline in board independence from management (Fama and Jensen 1983; Pearce and Zahra 1991; Roberts, McNulty and Stiles 2005). Board vigilance is weaker (Mizruchi 1983; Jensen 1993) and it may be more difficult for directors to objectively evaluate management.

The second theoretical perspective is that the positions of chairman and CEO should be occupied by one person. Advocates of stewardship theory suggest that the dual structure provides unified firm leadership and removes any internal or external ambiguity regarding the individuals responsible for the outcomes of major decisions (Finkelstein and D’Aveni 1994; Dalton et al. 1998; Muth and Donaldson 1998). The stewardship theory researchers claim that firms in which board leadership duality exists will perform better as the CEO has greater authority to make the necessary decisions (Donaldson and Davis 1991; Harris and Helfat 1998).3 The advantages of clear leadership might be most valuable in a situation where the company has to make fast decisions regarding its strategic orientation (Davidson, Nemec and Worell 1996).

Given the two opposing theoretical perspective, this paper cannot predict a clear relationship between board leadership structure and post-acquisition performance. However, a proxy for board leadership duality is included in the analysis to control for its possible influence on post-acquisition performance.

2.1.3 Non-executive versus executive directors

A company’s board of directors may be composed of executive and non-executive directors.4 Non-executive directors are usually viewed as representing shareholders while

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3 The separation of the two functions may create power struggles among corporate leaders as well as confusion about corporate objectives and expectations (Baliga, Moyer and Rao 1996).
4 Non-executive directors are considered those directors who do not work in the company (non-executives) while executive directors are those who are managers of the company at the same time (executives).
executive directors are assumed to represent management. Although the issue of whether directors should be executives or non-executives is well researched, it is unclear whether non-executive directors represent shareholders more effectively than executive directors (Dalton et al. 1998; Bhagat and Black 1999). The arguments for the particular influence of non-executive and executive directors on acquisition decision and subsequent performance arise from the general arguments for their influence on firm performance. In this literature, some researchers have argued for the superiority of non-executive-dominated boards, while others have argued for the superiority of executive-dominated boards.

With regard to the superiority of non-executive-dominated boards in determining the likelihood of better performance, two interrelated sets of arguments focusing on the potential characteristics of these boards can be identified:

- Independence—non-executives present some independence from top management that makes them more likely to provide monitoring and advice, demand more information (Fama 1980; Mizruchi 1983; Dalton and Kesner 1987; Eisenhardt 1989; Walsh and Seward 1990; Pearce and Zahra 1992; Rhoades, Rechner and Sundaramurthy 2000; Wright, Kroll and Elenkov 2002; Roberts, McNulty and Stiles 2005) and provide the firm with resources otherwise unavailable to the firm’s management (Bazerman and Schoorman 1983; Boeker and Goodstein 1991).  

- Motivation—non-executives prefer to have a high reputation, so they do not want to be associated with a badly performing firm (Fama and Jensen 1983; Daily, Johnson and Dalton 1999; Shen 2005).

The preference for executive-dominated boards is largely grounded in stewardship theory. There are two interrelated sets of arguments for the superiority of executive-dominated boards on determining the likelihood of better performance:

5 Some researchers, however, question the effectiveness of non-executive directors because they may be co-opted by CEOs (Wade, O’Reilly and Chandratat 1990). Some non-executives may also have business relationships with the firm or have personal relationships with the CEO or other senior executives (Daily and Dalton 1994).

6 Fama (1980) and Fama and Jensen (1983) observed that non-executive directors compete in the non-executive directors labour market. They have incentives to develop a reputation as experts in monitoring management because the value of their human capital depends on it. Moreover, their performance as non-executive directors serves as a signal of their abilities in similar capacities. This reputation capital provides the non-executive directors with an incentive to monitor managerial decisions.
• Familiarity—executives are more familiar with the firm’s activities and better able to evaluate the CEO’s decisions (Kesner 1987; Baysinger and Hoskisson 1990; Donaldson 1990; Donaldson and Davis 1991; Wagner, Stimpert and Fubara 1998; Ruigrok, Peck and Keller 2006).

• Motivation—executives are likely to monitor management because they care about their reputation in the labour market (Donaldson and Davis 1994).

There is also a stream of research that predicts no relationship between the proportion of non-executive directors on the board and firm performance (Hermalin and Weisbach 1991; Daily and Dalton 1993; Yermack 1996; Beiner et al. 2004). According to this view, executive and non-executive directors serve complementary roles on the board. The two types of directors bring different skill sets to decision making. The direct contact between corporate managers and non-executive directors on boards of directors where they see themselves as equals increases the likelihood that valuable information will be passed between them. This sharing of information makes it easier for both executives and non-executives to evaluate the CEO’s performance. Cooperation between executive and non-executive directors should make the board more effective than in the case where either type of director dominates the board. Scholars have concluded that a complementary balance of executive and non-executive directors is important (Fama and Jensen 1983; Baysinger and Butler 1985; Baysinger and Hoskisson 1990).

While there appears to be no clear linear relationship between the proportion of non-executives and performance, it remains possible that a non-linear one exists. When the proportion of non-executives on the board is low, the board is dominated by managers who can impose their decisions. When the proportion of non-executives rises, they may impose their point of view and limit the managers’ discretion, creating an opportunity for better results in terms of post-acquisition performance. However, this would happen up to a point. If the proportion of non-executives on the board were too high, the board may not have enough information on how to run the company. This possibility will make the board more likely to make wrong decisions. Therefore, this paper predicts the following relationship as described in Hypothesis 2:

**H2:** The proportion of non-executive directors on the acquirer’s board has an ‘inverted U’ relationship with long-term post-acquisition performance.
2.2 Ownership structure

Berle and Means (1932) argue that when managers hold little equity in the firm and shareholders are too dispersed to enforce value maximisation, corporate assets may be deployed to benefit managers. Managerial self-monitoring (interest alignment) or external monitoring induced by ownership structure may promote the efficient utilisation of firm resources in acquisition projects. Porter (1980) and McGee and Thomas (1986) contend that ownership structure has influence on strategy and time horizons for decision making. Ownership structure is mainly studied on two dimensions: insider ownership—shareholdings by management and directors, and blockholder ownership—shareholdings by blockholders.7

2.2.1 Insider ownership

Jensen and Meckling (1976) argue that as insider ownership increases, the interests of managers and shareholders converge and, therefore, agency conflicts are likely to be resolved. Increased insider ownership encourages managers to maximise shareholder value rather than simply pursue strategies that will offer them personal benefits. Giving managers a share of ownership requires them to bear a part of the cost of poor decisions (Jensen and Meckling 1976; Leland and Pyle 1977). Morck, Shleifer and Vishny (1990) propose that managerial ownership incentives may be the most effective deterrent to investments that decrease a firm’s value. Board members with high equity stakes are also more likely to exert a strong influence on managers’ decisions (Miller and Komorita 1987) and more likely to resist an acquisition proposal that destroys shareholder value (Buchholtz and Ribbens 1994). This ‘convergence of interest’ hypothesis suggests that firm value increases as management or director ownership rises (Jensen 1993). In the literature on acquisitions, it is often argued that the relationship between insider ownership and acquisition performance is monotonically positive (Lewellen, Loderer and Rosenfeld 1985; Agrawal and Mandelker 1987; Bethel and Liebeskind 1993; Kroll et al. 1997; Loderer and Martin 1997; Shinn 1999). Lewellen, Loderer and Rosenfeld (1985) demonstrated that announcement period abnormal stock returns are positively related to management ownership in the bidder. Agrawal and Mandelker (1987) also showed that insider ownership is higher for firms that choose mergers (and divestitures) that increase the value of the firm’s shares. Kroll et al. (1997) found that acquisitions made by manager controlled firms generated significant negative returns while

7 Blockholders are shareholders who own a significant portion of the firm’s shares—normally above 5%. 

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for owner-manager controlled and owner controlled firms these transactions generated positive returns.8

Demsetz (1983) and Fama and Jensen (1983), among others, identified offsetting costs of significant insider ownership and argued that increased levels of insider ownership can be expected to result in bad corporate performance. Moreover, even for low levels of insider ownership, market discipline may still force managers to pursue value maximisation. In contrast, when managers own a substantial fraction of the firm shares, which confers them enough power and influence, they may satisfy their non-value-maximising objectives without endangering their employment and remuneration. These arguments give rise to the ‘entrenchment’ hypothesis, according to which excessive insider ownership has a negative impact on corporate performance because a level of insider ownership that is too high is likely to entrench the managers.

Combining the previous two sets of arguments, insider ownership appears to be motivated by the desire for direct monetary gain from share price increases as well as the possibility of exercising control over the company (De Miguel, Pindado and Torre 2004). These motives can cause managerial alignment (Jensen and Meckling 1976) and managerial entrenchment (Stulz 1988). Stulz (1988) argues that the relationship between the monetary motive and the control motive depends on the level of managerial ownership; low levels of ownership will be associated with the monetary motive and high levels will be associated with the control motive. This argument suggests a non-linear relationship between managerial ownership and firm value: as managerial ownership increases, the negative effects associated with the entrenchment of managers start to exceed the incentive benefits of managerial ownership. Hubbard and Palia (1995) and Wright et al. (2002) documented non-linear relationships between value creation and insider ownership in US acquisitions, a result similar to that found by Bigelli and Mengoli (2004) for acquiring firms in Italy.9 Craswell, Taylor and Saywell (1997) documented only a weak curvilinear relationship between insider ownership and performance in Australia; the relation was found to be unstable across time.

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8 Manager-controlled firms are those firms in which no single shareholder owned more than 5% of the stock. Owner-manager-controlled firms were those firms in which at least one senior manager owned 5% or more of the company. Owner-controlled firms were firms that had at least one shareholder with a 5% or greater stake.

9 Support for this argument was found by Wright et al. (2002), who identified that when managers possess moderate values of share ownership, the relationship between managerial shareholdings and stock return after an acquisition is significant and positive. When managers are major shareholders, however, the relationship becomes significantly negative.
and inconsistent over firm-size groups.\textsuperscript{10} Therefore, this paper predicts the following relationship as described in Hypothesis 3:

\textbf{H3}: The level of acquirer’s insider ownership has an ‘inverted U’ relationship with long-term post-acquisition performance.

\textbf{2.2.2 Blockholder ownership}

Agency theory assumes that managers’ monitoring can be accomplished when ownership is concentrated in the hands of large blockholders (Demsetz 1983; Shleifer and Vishny 1991). Given that ownership dispersion makes the monitoring of managers difficult, a positive relation between blockholder ownership and firm performance is expected (Shleifer and Vishny 1986; Holderness and Sheehan 1988; Stulz, Walkling and Song 1990). Investors with large ownership stakes may have strong incentives to maximise their firms’ value and are able to collect information and oversee managers. As such, they can help overcome the conflict of interests between non-executive shareholders and managers as the ‘monitoring’ hypothesis proposes (Jensen and Meckling 1976). Evidence shows that the presence of large shareholders may increase the market value of a company (e.g. Morck, Shleifer and Vishny 1988). Some researchers (e.g. Holderness and Sheehan 1985; Barclay and Holderness 1991; Bethel, Liebeskind and Opler 1998) have found that purchases of large stakes are followed by increases in stock value and high rates of top management turnover. In the model developed by Shleifer and Vishny (1986), the presence of large shareholders in the bidding firm effectively promotes the interests of all shareholders.

High blockholder ownership may also lead to poor performance, as the ‘expropriation’ hypothesis proposes (Shleifer and Vishny 1997). This hypothesis argues that value reduction or redistribution may arise from the conflict between large, controlling blockholders and minority shareholders. Baek, Kang and Park (2004) found evidence that Korean listed firms with concentrated ownership by controlling family shareholders experienced a larger drop in stock value during the 1997 financial crisis. With regard to acquisitions, large shareholders do not appear to be influential in merger decisions (Loderer and Martin 1997) and may actually be detrimental (Sudarsanam, Holl and Salami 1996) by encouraging managers to engage in wealth-decreasing combinations.

\textsuperscript{10} To account for the size effect, the paper will control for acquirer’s size as a determinant of performance.
The two competing hypotheses presented above suggest the possibility of a non-linear relationship between blockholder ownership and performance (De Miguel, Pindado and Torre 2004). In a survey of the literature, Holderness (2003) concluded that while blockholders have incentives to monitor management, they might also consume corporate resources. This paper accepts the above theoretical arguments and predicts a non-linear relationship between blockholder ownership and post-acquisition performance (Claessens et al. 2002). De Miguel, Pindado and Torre (2004) found evidence of a non-linear relationship between large shareholders’ ownership and firm performance for Spanish companies. Therefore, this paper predicts the following relationship as described in Hypothesis 4:

**H4:** The level of acquirer’s blockholder ownership has an ‘inverted U’ relationship with long-term post-acquisition performance.

### 2.3 Financial leverage

In line with agency theory, debt is another monitoring mechanism to make management work in the interest of shareholders. Debt involves monitoring from the debtholders and leads to more strict financial control (Hitt et al. 1996). Debt obliges managers to choose good projects so that they will be able to pay back the funds and to borrow at a low interest rate in the future. High debt levels may require higher firm performance to pay back the debt (Seth 1990). While interest and principal payments on debt are mandatory, a firm does not have to pay dividends to its shareholders, and that is why managers are less constrained to have sufficient cash flows in a firm without leverage. This advantage of debt is more important in companies that generate large cash flows, preventing overinvestment (Jensen 1986). Debt also has tax advantages: interest payments are tax deductible and thus will involve a higher profit for a leveraged firm in comparison to a firm without leverage.

However, debt may have also some costs determined by the fact that it may discourage investment initiatives. In the case of a firm with low growth opportunities, the most likely result is preventing managers from investing in negative present value projects. The leverage may also discourage investments in positive net present value projects because the benefits will accrue, at least partially, to the debtholders rather than to the shareholders (Myers 1977).\(^{11}\) This is known as the underinvestment problem: highly leveraged firms are

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\(^{11}\) Aivazian, Ge and Qiu (2005) showed that leverage is negatively related to investment and that this negative
less likely to exploit valuable investment opportunities than firms with low levels of leverage. A related underinvestment argument centres on a liquidity effect. This argument submits that firms with large debt commitments invest less irrespective of the nature of their investment opportunities because they lack cash flows. Agrawal and Knoeber (1996) and Beiner et al. (2004) found no relationship between leverage and firm performance and argued that leverage is employed optimally in conjunction with other governance mechanisms.

Only a few empirical studies focus on the relationship between the acquirer’s leverage and the takeover outcome. Jensen (1986) observed that leverage-increasing acquisitions result in significant positive increases in share prices while leverage-decreasing ones result in significant decreases. Maloney, McCormick and Mitchell (1993) showed that the acquirer’s abnormal returns are related to pre-announcement acquirer’s leverage. This is consistent with the arguments put forward by Jensen (1986). More recently, Masulis, Wang and Xie (2007) found that leverage has a non-significant positive effect on the acquirer’s returns.

In conclusion, financial leverage may provide monitoring and tax benefits that increase performance. Leverage also deters investment, so the relationship between leverage and post-acquisition performance is likely to be moderated by the acquirer’s growth opportunities. However, with regard to agency risk, low levels of financial leverage may determine lower post-acquisition performance than higher levels of financial leverage. Therefore, this paper predicts the following relationship as described in Hypothesis 5:

\[ \text{H5: The level of acquirer’s leverage has a positive relationship with long-term post-acquisition performance.} \]

### 2.4 Free cash flow

Jensen (1986) argues that the agency conflict between managers and shareholders is most severe in the presence of large free cash flows—that is, cash flows in excess of that needed to make the required payments to stakeholders and to fund the projects with positive effect is significantly stronger for firms with low growth opportunities than those with high growth opportunities. McConnell and Servaes (1995) examined a large sample of non-financial US firms operating in the years 1976, 1986 and 1988. For each year, they split their sample into two groups based on growth opportunities. They found that corporate value was negatively correlated with leverage for firms with high growth opportunities and positively correlated with leverage for firms with low growth opportunities. Their results are consistent with the hypothesis that leverage induces underinvestment and reduces firm value for high growth opportunities. They are also consistent with the hypothesis that leverage attenuates overinvestment and increases firm value for low growth opportunities. The later hypothesis is also confirmed by Lang, Ofek and Stulz (1996).
Free cash flow theory postulates that, when a firm has free cash flow, it may invest in non-positive net present value projects (Jensen 1986). Management cannot always find profitable projects, but they do want to invest free cash flow in projects that they believe will maximise their personal benefits. Jensen (1986) noted that acquisitions are a primary method by which managers can spend the cash instead of paying it out to their shareholders, and managers of firms with free cash flow are likely to undertake value destroying acquisitions. Harford (1999) submits that the managers of acquirers with excess cash may be prone to make acquisitions that are not well planned and hence not likely to perform well. The managers of firms with free cash flow are only interested in spending the cash as soon as possible on projects that will increase their benefits; having the free cash flow in the firm for a long time is not acceptable for the managers as the firm may become a takeover target for other firms that are interested in the available cash. Harford (1999) found that firms exhibit agency risks with respect to the accumulated free cash flow. In a study of 101 US tender offers in the period 1968–1986, Lang, Stulz and Walking (1991) found support for the negative influence of free cash flow on performance. The results revealed that an increase of free cash flow is associated with a decrease in abnormal returns of an approximately similar amount for low growth opportunities firms.

Some researchers suggest that free cash flow has a positive influence on investment and performance. Myers and Majluf (1984) argue that capital market imperfections deriving from asymmetric information between managers and capital providers might make access to external funds costly for companies. In the presence of these imperfections, free cash flow may have a strategic role. Managers can increase firm value by managing their free cash flows as buffer stocks. These buffer stocks allow the firm to finance necessary investments internally even when current cash flows are insufficient to meet the firm’s investment demands. Thus, free cash flow provides benefits to shareholders by reducing the underinvestment problem. Under this hypothesis, firms with free cash flow are no more likely to make bad investments than any other firms. Moreover, Hanson (1992) and Smith and Kim (1994) have found that there are gains in an acquisition when firms with financial problems combine with cash rich firms. However, Masulis, Wang and Xie (2007) showed that free cash flow has an insignificant effect on bidder returns. In conclusion, free cash flow has costs and benefits. However, with regard to agency risk, high levels of free cash flow may determine lower post-acquisition performance than low free cash flow levels. Therefore, this paper predicts the following relationship as described in Hypothesis 6:
**H6:** The level of acquirer’s free cash flow has a negative relationship with long-term post-acquisition performance.

### 3. Research method and data description

This section presents the research method and the data used to test the research hypotheses. The sampling process is described in sub-section 3.1. The variables used to measure performance and to proxy for agency risks are described in sub-section 3.2 and 3.3 respectively. A detailed description of testing methods is provided in sub-section 3.4.

#### 3.1 Sample

The sample was obtained from the *Thomson Reuters’ SDC Platinum* database and consists of 2937 acquisitions that were identified according to four criteria:

- The acquirer was an Australian publicly listed company.
- The transaction was a completed firm acquisition rather than an asset acquisition.
- The announcement date of the sample transaction was between 1 January 2003 and 31 December 2013.

This filtering process is summarised in Table 1.

Table 1 here

### 3.2 Performance variables

Post-acquisition performance is measured using cumulative abnormal returns (CAR) around the acquisition announcement (a later version of this paper will analyse the long-term buy-and-hold returns, return on assets and return on equity over a three period after acquisition). Raw data for estimating market based performance are *Thomson Reuters’ Datastream*.

Consistent with Patell (1976) and Brown and Warner (1985), the measure is defined as the difference between the acquiring firm’s observed return and its expected return during a specified period of time surrounding the initial announcement date of the acquisition. This measurement is widely used in M&A studies (King et al., 2004).
Though this measure is based on the market efficiency hypothesis, several studies have demonstrated its reliability and validity. A test held by Agrawal et al. (1992) illustrates that the market is quick enough to adjust to the acquisition event (“event” refers to the initial acquisition announcement). Moreover, Healy et al. (1992) have showed that cumulative abnormal stock returns around the initial announcement date is positively associated with the long-term measure of acquisition performance, including operating cash flows, showing that market reaction around the initial merger announcements is a valid proxy for acquisition performance.

Furthermore, daily stock returns are chosen to calculate the excess stock returns in this paper. According to Chatterjee (1986), monthly market returns potentially weaken a study’s result because the use of a large window around the initial merger announcement date is more likely to capture information that is unrelated to the acquisition event. Moreover, Brown and Warner (1985) have shown that daily data is more straightforward than monthly data, and its characteristics present fewer difficulties in the context of event study.

Consistent with extant literature (e.g., Chatterjee, 1986; Mcdonald et al., 2008; Patell, 1976), the market model is used to calculate the expected rate of return for each acquirer for the period under investigation. The regression model is describes as follows (Patell, 1976; Gaver et al., 1992):

\[ R_{jt} = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt} \] (1)

where \( R_{jt} \) is the individual firm’s return on day \( t \), and \( R_{mt} \) is the return on a market index on day \( t \). \( \beta_j \) is the market-adjusted variance in stock returns for firm \( j \), \( \alpha_j \) is the rate of return for firm \( j \) when \( R_{mt} \) is zero, and \( \varepsilon_{jt} \) is a serially independent disturbance term \[ E(\varepsilon_{jt}) = 0 \].

The parameters of the market model (\( \alpha_j \) and \( \beta_j \)) are estimated over a 250-day period (ranging from 280 days to 30 days prior to the initial merger announcement), with the 30-day time interval is excluded for the purpose of controlling for information leakage (Datta et al., 2013). The excess return (\( e_{jt} \)) from each acquisition is then generated by subtracting the expected returns obtained in the estimation period from the actual returns during the event period. The excess return of each acquisition is as follows:

\[ e_{jt} = R_{jt} - a_j - b_j R_{mt} \] (2)

where \( a_j \) and \( b_j \) are least squares estimates of \( \alpha_j \) and \( \beta_j \) from (3), and \( R_{jt} \) and \( R_{mt} \) are defined as above.

Several different event periods are used in this paper. In the primary analysis, however, excess returns are estimated over 3-day period (\( t_{-1} \) to \( t_{+1} \)) and 21-day period (\( t_{-10} \) to \( t_{+10} \)). These windows are set carefully, because shorter windows may miss early market
reactions while longer windows may capture unrelated information. However, for robustness, other popular event windows ($t_2$ to $t_{+2}$, $t_3$ to $t_{+3}$, $t_5$ to $t_{+5}$) are tested in this paper (e.g., Anand and Singh, 1997; Hayward, 2003; Krishnan et al., 2009). The descriptive statistics for the performance variables used further in the analysis are presented in Table 2.

| Table 2 here |

---

### 3.3 Agency risks variables

The agency risks proxies considered in this paper pertain to board structure (board size, board leadership duality and proportion of non-executive directors on the board), ownership structure (insider and blockholder ownership), financial leverage, and free cash flow. The information for agency risk variables related to board and ownership structure is based on the year prior to the acquisition announcement and was extracted from SIRCA’s Corporate Governance and supplemented by Connect 4’s Boardroom Review. Additional information on variables of interest was sourced from Thomson Reuters’ Datastream and Morningstar DataAnalysis Premium. The primary source of data on the control variables related to deal characteristics was Thomson Reuters’ SDC Platinum M&A database.

Board size ($bs$) is measured as the number of directors sitting on the acquirer’s board one year prior to the acquisition. Board leadership duality is represented by a dummy variable ($CEOChair$) equal to 1 when the CEO was also the chairman of the board and 0 otherwise. The proportion of non-executives on the board ($nex$) is the number of non-executives divided by board size. The number of shares held by all directors is divided by the total number of shares on issue to obtain the insider ownership variable ($dirsh$). Ownership of directors was used as a proxy for insider ownership by, for example, Brailsford, Oliver and Pua (2002), Morck, Shleifer and Vishny (1988), and Keasey, Short and Watson (1994). The percentage of total shares held by the shareholders holding more than five per cent of the company’s stock ($sh5$) was manually computed based on available data. Financial leverage ($finlev$) is defined as the value of total debt divided by the book value of total assets one year prior to the acquisition. The level of free cash flow ($freecf$), based on data from Morningstar DataAnalysis Premium, is calculated as the net operating cash flows minus interest expense,
tax expense, preference and ordinary dividends, scaled by the book value of total assets. The descriptive statistics for the agency risks variables are included in Table 3.

<table>
<thead>
<tr>
<th>Table 3 here</th>
</tr>
</thead>
</table>

The median board size \((bs)\) was six. The mean board size is almost six. These statistics are consistent with those obtained by Kiel and Nicholson (2003). They reported a mean board size in their sample of Australian publicly listed companies in 1996 of 6.6. The statistics from the current sample are almost identical to those obtained by Matolcsy, Stokes and Wright (2004) for Australian companies for 2001, who reported a mean board size of 6.6 and a median of six directors.

The descriptive statistics for the board leadership duality variable \((CEOChair)\) show that in the majority of cases (around 60% of the sample) the CEO was not the chairman of the board. Only 1145 deals (39% of the sample) involved acquirers where the CEO was the chairman of the board. This is more than the 23 per cent reported by Kiel and Nicholson (2003) for Australian companies in 1996.

The mean value of the non-executive proportion variable \((nex)\) was almost equal to the proportion of 73 per cent reported by Stapledon and Lawrence (1997) for their sample of Top 100 firms in Australia in 1995 and the proportion of 72 per cent reported by Korn-Ferry (2002) for 426 leading companies in Australia in 2001. Also, the mean and median values in this current study are consistent with those found by Kiel and Nicholson (2003). They reported a mean proportion of non-executive directors in Australian companies in 1996 of 69 per cent with a median of 75 per cent. Matolcsy, Stokes and Wright (2004) reported a mean proportion of 66.5 per cent and a median of 71.4 per cent for their sample of Australian companies in 2001. The mean proportion reported here is also consistent with the 67 per cent reported by Xie, Davidson and DaDalt (2003) for US companies. However, given the relatively high proportion of non-executives observed across this study’s sample, this variable might not have a significant influence on performance.

The mean combined stake of all board members \((dirsh)\) was 16.56 per cent, which is higher than the 10.7 per cent and 10.3 per cent reported in Australia by Brailsford, Oliver and Pua (2002) and Psychogios (2001) respectively. This statistic is also higher than the 11.8 per cent reported by McConnell and Servaes (1990) in the US. In the UK, Sudarsanam, Holl and
Salami (1996) reported a mean insider ownership of 10 per cent for the period 1980 to 1990. Short and Keasey (1999) reported a mean insider ownership level of 12.5 per cent and a median of 5.6 per cent during the period 1988 to 1992.

The descriptive statistics for the blockholder ownership variable \((sh5)\) were consistent with those identified in previous research. For example, using the data on the ownership of the top five shareholders as a proxy for blockholder ownership, Brailsford, Oliver and Pua (2002) reported an average of 43.28 per cent (and a median of 40.72%) for their sample of Australian firms in 1998. The slightly higher values obtained by Brailsford, Oliver and Pua (2002) may be due to the fact that aggregating the top five shareholdings into the blockholder ownership measure could include shareholders with less than five per cent ownership. In general, Australian publicly listed companies have less than five shareholders that own five per cent or more of a company. The descriptive statistics reported in this paper are consistent with those of McConnell and Servaes (1990) that found that the mean blockholder ownership was 32.4 per cent for US companies and those of Faccio and Lasfer (2000) and Davies, Hiller and McColgan (2005) that found approximately 35 per cent for the UK.

### 3.4 Research method

Hypotheses 1 to 6 deal with the influence of agency risks on post-acquisition performance. As discussed before, the agency risks of the acquirer are estimated using the following variables: board structure (in terms of board size, board leadership structure and non-executive proportion); ownership structure (in terms of insider and blockholder ownership); financial leverage; and free cash flow.

This paper analyses the relationship between monitoring or interest alignment mechanisms and acquisition performance. The performance impact of a mechanism that can induce agency risks in performing an acquisition—i.e. free cash flow—is also tested. The monitoring or interest alignment mechanisms can be complements to, or substitutes for, each other (Rediker and Seth 1995; Agrawal and Knoeber 1996; Cremers and Nair 2005). An efficient corporate governance system includes a multiplicity of mechanisms to ensure that

---

\[12\] For example, Coles and Hesterly (2000) found that the relationship between board leadership duality and shareholder wealth is largely contingent on board structure, reinforcing the importance of moderating monitoring or interest alignment mechanisms in examining the impact of duality. This is a view echoed by other scholars (e.g. Conyon and Murphy 2000; Davidson et al. 2004). There is also evidence that board size, together with other features of the board, is endogenously determined by ownership structure (Hermalin and Weisbach 2003).
the interests of shareholders are protected against the agency risks (Suchard, Singh and Barr 2001; Beiner et al. 2006). To address this issue, this paper considers together in a model all the variables that describe the monitoring or interest alignment mechanisms, plus the variable for free cash flow. The lack of a relationship between one mechanism and post-acquisition performance may mean that other mechanisms influence the relationship. Moreover, based on the arguments presented before with regard to the particulars of Australian companies and the descriptive statistics of agency risks variables, some agency variables are not expected to be good predictors of post-acquisition performance. A condensing technique is used to identify the agency variables that have a significant influence on post-acquisition performance. This technique compares a regression model of all the agency variables with partial models obtained by removing only one agency risks variables at a time.\(^{13}\) The rest of the agency variables are regressed together against the performance variable in the full regression model described in Equation 3.

\[
\text{performance} = \alpha + \beta_1bs + \beta_2bs_{sq} + \beta_3nex + \beta_4nex_{sq} + \beta_5C\text{EOChair} + \beta_6d\text{irsh} + \beta_7d\text{irsh}_{sq} + \beta_8sh5 + \beta_9sh5_{sq} + \beta_{10}\text{finlev} + \beta_{11}\text{free cf} + \beta_{12}\text{CV},
\]

where:

\begin{align*}
\text{performance} & \quad - \text{the cumulative abnormal returns around acquisition announcement.} \\
bs & \quad - \text{the acquirer’s board size.} \\
bs_{sq} & \quad - \text{the squared value of the acquirer’s board size (bs).} \\
nex & \quad - \text{the proportion of non-executives on acquirer’s board.} \\
nex_{sq} & \quad - \text{the squared proportion of non-executives on acquirer’s board.} \\
C\text{EOChair} & \quad - \text{dummy variable that equals 1 if the acquirer’s CEO is the same person as the chairman of the board.} \\
d\text{irsh} & \quad - \text{the percentage of shares owned by the directors.} \\
d\text{irsh}_{sq} & \quad - \text{the squared value of the percentage of shares owned by the directors (d\text{irsh}).}
\end{align*}

\(^{13}\) For board size, insider ownership and blockholder ownership, non-linear relationships with performance are predicted. In those cases, the full regression model includes the proxies and their squared values. Thus, when removing one of these proxies, the actual number of variables excluded is two.
sh5 - the percentage of acquirer’s shares owned by shareholders holding more than 5% of the acquirer’s stock.

sh5_sq - the squared value of the blockholder ownership (sh5).

finlev - the acquirer’s financial leverage scaled by the book value of total assets.

freecf - the acquirer’s free cash flow scaled by the book value of total assets.

CV - a vector of control variables, including proxies for method of payment (stock), acquirer’s size (size) and prior shareholdings (toehold) and indicator variables for domestic acquisition (domestic), acquisition relatedness (related) and acquisition of a publicly listed target (tg_listed).

If removing a particular agency risk variable significantly reduces the variance in performance explained by the model (that is, the R-squared value), that variable is considered to influence the performance. The difference in R-squared values between the partial regression models obtained by removing one agency risks proxy at a time and the full model is tested using the F-test described in Equation 4.

\[ F_{p_i,n-k} = \frac{(R_{\text{full}} - R_i) / p_i}{(1 - R_i) / (n - k)} \]  \hspace{1cm} (4)

where:

\( F_{p_i,n-k} \) - the F-test value with \( p_i \) and \( n - k \) degrees of freedom.

\( R_{\text{full}} \) - the R-squared of the full regression model.

\( R_i \) - the R-squared of the partial regression model ‘i’.

\( p_i \) - the number of variables excluded in the partial regression ‘i’.

\( n \) - the number of cases (sample size).

\( k \) - the number of independent variables in the full regression model.
4. Results

High correlation between agency variables may result in confounding effects with regard to their influence on post-acquisition performance. The Pearsonian correlations among the agency variables are presented in Table 4.

Table 4 here

Board size is significantly correlated with the proportion of non-executive directors on the board, insider and blockholder ownership (inversely) and free cash flow. The positive correlation between board size and non-executive directors confirm Yermack (1996)’s prediction and is consistent with Boone et al. (2007).

The negative correlation between board size and insider ownership is contrary to the prediction that an increase in the number of directors would produce an increase in the total number of shares owned by those individuals. One explanation for this result is that directors on large boards usually do not have an incentive to own a significant portion of the company’s shares because unless it gives them absolute control (which is possible only for a few), they cannot impose their interests over others. Another argument by Berry et al. (2006) is that as insider ownership decreases, alternative governance mechanisms are involved to help mitigate the corresponding increase in agency costs.

A large number of directors is likely to coincide with a high level of free cash flow, as the correlation results show. These results can be explained by the increased access to resources provided by large boards, which includes easy access to cash or other means of financing.

The board leadership duality variable is negatively correlated with the proportion of non-executives on the board. This means that when non-executives are present in a large proportion on the board, it is more likely that one of the non-executives will fulfil the role of chairman of the board. This result is consistent with that of Beiner et al. (2004), which indicates that non-executives seek independence from the CEO and prohibit the CEO to take the role of chairman of the board.

The negative correlation between the proportion of non-executives on the board and insider ownership is consistent with the hypothesis that suggests that the greater the
proportion of equity owned by managers, the more likely management interests are aligned with those of shareholders so no alternative monitoring is necessary. On the other hand, the managers, who bear the costs if shareholders resort to price protection, are more likely to institute increased levels of monitoring as their fractional claim on the firm decreases so that the lower the management’s relative share of the firm, the greater the likelihood that the board of directors will be dominated by non-executive directors. That prediction is supported by the results of this study. A related prediction predicts a negative relationship between the proportion of non-executives and blockholder ownership, which they also attribute to the need for monitoring. This relationship is also supported by the results of the current study.

The significant positive correlation between insider and blockholder ownership is consistent with the results obtained by Welch (2003) for Australian companies between 1999 and 2000. Welch (2003) found a correlation coefficient of 0.44, which is consistent with the one obtained in the current study.

The full regression model and the six partial regressions used to test the influence of the agency risks variables on cumulative abnormal returns CAR1 and CAR10 are reported in Table 5 and 6 respectively (the results for CAR2, CAR3 and CAR5 are similar and are available upon request). The size of the board of directors has a non-linear relationship with the abnormal returns, supporting hypothesis H1. This result confirms the arguments by Jensen (1993).

The results do not support the arguments predicting a negative relationship between board leadership duality and performance. The results show evidence of a significant positive relationship between the existence of board leadership duality and the acquisition performance. The results are inconsistent with, among others, those of Daily and Dalton (1993), Baliga, Moyer and Rao (1996) and the results of the meta-analytic review by Dalton et al. (1998).
The predicted non-linear relationship between the proportion of non-executives and performance in H2 was also not found. This result is consistent with the results obtained by Breazeale (2004).

The results of the partial regression models show weak evidence of a non-linear relationship between either insider or blockholder ownership and post-acquisition market returns, supporting hypotheses H3 and H4. This is consistent with the evidence provided by Claessens et al. (2002), Bai et al. (2004), Breazeale (2004) and Ben-Amar and Andre (2006). Claessens et al. (2002) and Bai et al. (2004) found that a firm’s value increases with the ownership of the largest shareholder, consistent with monitoring effects. However, when the largest shareholder controls a very large share of the firm, its value falls, which is consistent with expropriation effects. Ben-Amar and Andre (2006) found a non-linear relationship between ownership by the largest shareholder and announcement date cumulated abnormal returns, which is consistent with this study’s findings. The results also indicate that financial leverage and free cash flow do not appear to influence performance.

The results of the full and partial regression models do not support H5 and instead it is found that financial leverage has a negative impact on cumulative abnormal returns. However, H6 is supported, proving that acquirers with high levels of free cash flow prior to the acquisitions are expected to invest in unprofitable projects.

It can be observed from Tables 5 and 6 that, removing the variables associated with board size, the R-squared for the regression for CAR1 and CAR10 was significantly reduced. Therefore, the impact of board size on post-acquisition accounting performance seems to be the most important. The other agency risk variables did not make a significant contribution to explaining the variance in performance independent of other variables.

5. Summary and conclusions

This paper studied the impact of agency risks and the mechanisms used to avoid these risks on the acquisition performance of Australian publicly listed acquirers during the period from 2003 to 2013 in the presence of mechanisms that encourage agency behaviour. The proxies for agency risks considered in this paper pertain to board structure (board size, board leadership duality and proportion of non-executive directors on the board), ownership structure (insider and blockholder ownership), financial leverage, and free cash flow. The results show a non-linear relationship between board size and cumulative abnormal returns that suggests that at very low levels of board size, on average, the returns were low. This
result confirms the arguments by Jensen (1993). At very high levels, the market anticipates bad acquisition outcomes, probably due to the likely conflict between board members and a lack of cohesion, and thus a negative effect on cumulative abnormal returns can be observed. However, the returns were high at medium levels of board size. The result also show a positive linear relationship between board duality and cumulative abnormal returns and inverted “U” relationships between insider and blockholder ownership and cumulative abnormal returns. The negative relationship between financial leverage and cumulative abnormal returns indicates that financial leverage may have generated underinvestment problems in the acquirer that ultimately affected the returns on assets. Companies with high free cash flow are less likely to use the cash on profitable ventures.

The lack of a relationship between one mechanism and post-acquisition performance may mean that other mechanisms influence the relationship. However, the results suggest that the impact of board size on post-acquisition accounting performance is the most important. The other agency risk variables did not make a significant contribution to explaining the variance in performance.
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<tr>
<th>Steps in the filtering process</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian successful firm acquisitions by listed companies from 2003-2013</td>
<td>4852</td>
</tr>
<tr>
<td>Less acquisitions without enough information for estimating CARs</td>
<td>893</td>
</tr>
<tr>
<td>Less acquisitions without enough information for agency risks variables</td>
<td>621</td>
</tr>
<tr>
<td>Less acquisitions without enough information for control variables</td>
<td>401</td>
</tr>
<tr>
<td><strong>Final sample</strong></td>
<td><strong>2937</strong></td>
</tr>
</tbody>
</table>

Table 2. Descriptive statistics for the performance variables (N = 2937)

<table>
<thead>
<tr>
<th>Performance variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Percentiles</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25</td>
<td>50</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>CAR1</td>
<td>0.031</td>
<td>0.154</td>
<td>-0.558</td>
<td>-0.015</td>
<td>0.007</td>
<td>0.040</td>
<td>3.420</td>
</tr>
<tr>
<td>CAR2</td>
<td>0.034</td>
<td>0.161</td>
<td>-0.437</td>
<td>-0.019</td>
<td>0.009</td>
<td>0.051</td>
<td>3.481</td>
</tr>
<tr>
<td>CAR3</td>
<td>0.036</td>
<td>0.168</td>
<td>-0.533</td>
<td>-0.024</td>
<td>0.010</td>
<td>0.059</td>
<td>3.478</td>
</tr>
<tr>
<td>CAR5</td>
<td>0.037</td>
<td>0.185</td>
<td>-0.536</td>
<td>-0.033</td>
<td>0.011</td>
<td>0.069</td>
<td>3.744</td>
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<tr>
<td>CAR10</td>
<td>0.037</td>
<td>0.231</td>
<td>-0.778</td>
<td>-0.052</td>
<td>0.011</td>
<td>0.085</td>
<td>4.045</td>
</tr>
</tbody>
</table>

*Notes: CAR1, CAR2, CAR3, CAR5 AND CAR10 represent the cumulative abnormal returns calculated around the acquisition announcement over the following intervals: (-1,+1), (-2,+2), (-3,+3), (-5,+5) and (-10,+10).*
Table 3. Descriptive statistics for the agency risks variables (N = 2937)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>bs</td>
<td>5.95</td>
<td>2.09</td>
<td>1.00</td>
<td>14.00</td>
<td>0.6</td>
<td>3.32</td>
</tr>
<tr>
<td>CEOChair</td>
<td>0.61</td>
<td>0.25</td>
<td>0.00</td>
<td>1.00</td>
<td>3.54</td>
<td>13.54</td>
</tr>
<tr>
<td>nex</td>
<td>71.34</td>
<td>17.71</td>
<td>0.00</td>
<td>100.00</td>
<td>-1.05</td>
<td>4.57</td>
</tr>
<tr>
<td>dirsh</td>
<td>16.56</td>
<td>24.58</td>
<td>0.00</td>
<td>100.00</td>
<td>4.45</td>
<td>47.67</td>
</tr>
<tr>
<td>sh5</td>
<td>33.45</td>
<td>36.84</td>
<td>0.00</td>
<td>100.00</td>
<td>8.24</td>
<td>101.78</td>
</tr>
<tr>
<td>finlev</td>
<td>0.75</td>
<td>10.90</td>
<td>0.00</td>
<td>118.33</td>
<td>50.01</td>
<td>260.92</td>
</tr>
<tr>
<td>freecf</td>
<td>-0.27</td>
<td>9.40</td>
<td>-4.33</td>
<td>1.41</td>
<td>-50.66</td>
<td>265.05</td>
</tr>
</tbody>
</table>

Notes: bs is the acquirer’s board size in terms of the number of directors. CEOChair is a dummy variable that equals 1 if the acquirer’s CEO is the same person as the chairman of the board. nex represents the proportion of non-executives on acquirer’s board. dirsh is the percentage of shares owned by the directors of the acquirer. sh5 represents the percentage of acquirer’s shares owned by shareholders holding more than 5% of the company’s stock. finlev and freecf are the acquirer’s financial leverage and free cash flow respectively scaled by the book value of total assets.

Table 4. Correlations among the agency variables (N = 2937)

<table>
<thead>
<tr>
<th>Variable</th>
<th>bs</th>
<th>CEOChair</th>
<th>nex</th>
<th>dirsh</th>
<th>sh5</th>
<th>finlev</th>
<th>freecf</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEOChair</td>
<td>-0.184***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nex</td>
<td>0.247***</td>
<td>-0.160***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dirsh</td>
<td>-0.145***</td>
<td>0.090***</td>
<td>-0.186***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sh5</td>
<td>-0.064***</td>
<td>0.041**</td>
<td>-0.053***</td>
<td>0.469***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>finlev</td>
<td>-0.029</td>
<td>-0.003</td>
<td>0.008</td>
<td>0.015</td>
<td>-0.018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>freecf</td>
<td>0.039**</td>
<td>0.001</td>
<td>-0.025</td>
<td>0.004</td>
<td>0.020</td>
<td>-0.412***</td>
<td></td>
</tr>
</tbody>
</table>

Notes: bs is the acquirer’s board size in terms of the number of directors. CEOChair is a dummy variable that equals 1 if the acquirer’s CEO is the same person as the chairman of the board. nex represents the proportion of non-executives on acquirer’s board. dirsh is the percentage of shares owned by the directors of the acquirer. sh5 represents the percentage of acquirer’s shares owned by shareholders holding more than 5% of the company’s stock. finlev and freecf are the acquirer’s financial leverage and free cash flow respectively scaled by the book value of total assets. The significance of the correlation coefficient is included in the parentheses below the statistics value.

***, **, * represent significance at 1%, 5% and 10% levels respectively.
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Notes: bs is the acquirer’s board size in terms of the number of directors. CEOChair is a dummy variable that equals 1 if the acquirer’s CEO is the same person as the chairman of the board. nex represents the proportion of non-executives on acquirer’s board. dirsh is the percentage of shares owned by the directors of the acquirer. sh5 represents the percentage of acquirer’s shares owned by shareholders holding more than 5% of the company’s stock. fnclev and fcf are the acquirer’s financial leverage and free cash flow respectively scaled by the book value of total assets. The F-test assesses the difference in R-squares between the full model, including all the agency variables, and the partial model.

***, **, * represent significance at 1%, 5% and 10% levels respectively.
Table 6. Multivariate regression results with CAR10 as performance measure (N = 2937)

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<tr>
<th>Variables</th>
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</table>

Notes: bs is the acquirer’s board size in terms of the number of directors. CEOChair is a dummy variable that equals 1 if the acquirer’s CEO is the same person as the chairman of the board. nex represents the proportion of non-executives on acquirer’s board. dirsh is the percentage of shares owned by the directors of the acquirer. sh5 represents the percentage of acquirer’s shares owned by shareholders holding more than 5% of the company’s stock. finlev and freecf are the acquirer’s financial leverage and free cash flow respectively scaled by the book value of total assets. The F-test assesses the difference in R-squares between the full model, including all the agency variables, and the partial model.

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