CORPORATE GOVERNANCE AND CEO DISMISSAL FOLLOWING POOR PERFORMANCE: AUSTRALIAN EVIDENCE

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Abstract

This study investigates the relation between corporate performance and the probability of Chief Executive Officer (CEO) dismissal in Australia. Consistent with prior studies based on U.S. and U.K. data, corporate performance is found to be negatively related to the probability of CEO dismissal, using both accounting and market based performance measures for a sample from the top 100 listed corporations in Australia from 1997 to 2004. The findings also indicate that contemporaneous performance measures dominate lagged measures in explaining CEO termination.

The study then investigates whether corporate governance mechanisms affect the likelihood of CEO dismissal, by examining their effect on the strength of the negative relation between corporate performance and CEO dismissal. The monitoring mechanisms examined are composition and size of the board of directors, and blockholders of shares. The study also investigates whether CEOs can insulate or entrench themselves from these monitoring mechanisms, by examining whether CEO ownership or CEO tenure weakens the likelihood of CEO dismissal. The results indicate that the corporate governance mechanisms examined do not influence the association between performance and the likelihood of dismissal.

1. Introduction

This paper seeks to identify if, and under what circumstances, either wealth or entrenchment considerations have dominated the behaviour of boards of directors in Australia in the context of CEO dismissals. Firstly, it examines the nature and direction of the relation between corporate performance and the probability of CEO dismissal. Secondly, it examines corporate governance characteristics that might affect the strength of this relation.

Corporate governance is defined by John and Senbet (1998) as dealing with "mechanisms by which stakeholders of a corporation exercise control over corporate insiders and management such that their interests are protected" (p. 372). In a review of the corporate governance literature, Farinha (2003) distinguished between internal monitoring mechanisms, which include large and institutional shareholders, inside ownership, CEO dismissal and CEO compensation packages, and external mechanisms, which include takeover threats, legislation and the managerial labour market.

The role of the board of directors in controlling corporate insiders and management is subject to mixed incentives. In certain circumstances, when faced with the poor performance of the corporation and its CEO, the board may act in a manner consistent with the wealth considerations of shareholders and dismiss the CEO, in the hope of appointing a new CEO who will improve the corporation's performance. In other circumstances, poor corporate performance may not result in CEO dismissal, perhaps because the CEO has become entrenched in the position.

Current regulatory trends are predicated on the assumption that effectively functioning boards are a pre-requisite for sound corporate governance. For example, the *Australian Stock Exchange Corporate Governance Council's Best Practice Recommendations* (2003) documents two important principles: to "recognize and publish the respective roles and responsibilities of boards and management" and to "have a board of an effective composition, size and commitment to adequately discharge its responsibilities". Section 101 of *the Sarbanes-Oxley Act (2002)* imposes similar expectations on boards of U.S. corporations. This motivates a need for evidence regarding the validity of this assumption, by identifying the characteristics which permit boards to function most effectively.

As well as confirming the findings of prior studies, by documenting a negative relation between corporate performance and the probability of CEO dismissal in Australia, the current study also investigates the corporate governance characteristics associated with the strength of the negative relation between corporate performance and the probability of CEO dismissal. We find no evidence that any of the selected corporate governance attributes affect the strength of this relation. These results are consistent with the actions of Australian boards being more directed by the wealth considerations of shareholders than CEO entrenchment.

Corporate performance is measured in terms of accounting profits and share returns, both contemporaneous and lagged. The findings also indicate that current-year earnings and share returns provide complementary information that is related to the board's CEO dismissal

decision. Further, the one-year lagged measures have no explanatory power for the probability of CEO dismissal, after controlling for contemporaneous earnings and returns.

Section 2 reviews the relevant literature and Section 3 presents the hypotheses to be tested. Section 4 discusses the data and methodology used to test the hypotheses, and Section 5 presents summary statistics based on the collected data. Results for this paper are presented and discussed in Section 6, followed by sensitivity analysis and further discussion of the results in Section 7. Section 8 concludes.

2. Literature Review

Fama (1980) introduced the idea that CEO dismissal by the board of directors for poor performance is a key monitoring mechanism in corporate environments characterised by separation of ownership and control. However, no monitoring mechanism, internal or external, either in isolation or in conjunction with other mechanisms, is able to achieve perfect alignment of shareholder and managerial interests. This is because we live in a world characterised by incomplete contracts, in which all future contingencies cannot be predicted (Shleifer and Vishny 1997). Furthermore, costs are incurred in re-aligning interests. It follows that the manner in which the contracts are implemented (i.e., corporate governance) affects the success of the contracts in reducing the agency problem (Garvey and Swan 1994). The nature and magnitude of future contingencies and costs of monitoring mechanisms may vary as a function of corporate attributes, among other factors. Hence, the effectiveness of boards in disciplining

poorly performing managers is likely to differ among corporations[1] (John and Senbet 1998). This prompts the following questions. Firstly, what is the relation between corporate governance characteristics and the effectiveness of boards in disciplining poorly performing managers? Secondly, which governance characteristics have explanatory power for boards' propensity to dismiss poorly performing CEOs?

Using U.S. data, Coughlan and Schmidt (1985) document evidence that boards use share price performance to make decisions regarding CEO dismissal. Also using U.S. data, Warner, Watts and Wruck (1988) and Denis, Denis and Sarin (1997) document a negative relation between corporate performance and the probability of top management change. Conyon and Florou (2002) and Hillier, Linn and McColgan (2003)[2] provide corroborative evidence from the U.K.

Conclusions from U.S- and U.K.-based research may not be generalisable to Australia, due to unique features of the Australian institutional environment. Dual-class voting structures, vehicles for management entrenchment, are quite common in the U.S. (DeAngelo and DeAngelo 1985) and the U.K., but are very uncommon in Australia (Taylor and Whittred 1998). This suggests that Australian CEOs may be less likely than their U.S. and U.K. counterparts to be insulated from disciplinary action by boards. Furthermore, separation of the role of CEO and board chairman is typical in Australia, but substantially less so in the U.S. (Goyal and Park 2002) and the U.K. (Dahya, Lonie and Power 1998). This indicates that boards in Australia may be more independent and potentially less reticent about dismissing poorly-performing CEOs.

[1] Other factors affecting the effectiveness of boards in disciplining managers may be related to the institutional environments in which corporations operate. These include the regime of corporate and securities regulation, the expected costs of shareholder litigation and the depth of securities markets.

[2] However, Dahya, McConnell and Travlos (2002), using a U.K. sample, were unable to report evidence that the introduction of the Cadbury Code resulted in increased likelihood of CEO dismissal for poor performance.

Australian research into CEO turnover is mostly focused on earnings management surrounding CEO changes. Even though the association between corporate performance and CEO turnover is not the main focus of these papers, their descriptive statistics suggest a negative association. Wells (2002) classifies corporate performance (measured as Operating Profit After Tax over Total Assets) as good or poor, and finds a significant association between poor corporate performance and non-routine CEO changes, for a sample of 65 CEO changes in the top 100 corporations between 1984 and 1994. Godfrey, Mather and Ramsay (2003) find lower profit on average in the year of a CEO change, based on a sample of 63 CEO changes between 1992 and 1998. These results motivate a systematic analysis of the association between corporate performance and the probability of CEO dismissal in Australia.

Mather and Ramsay (2003) provide evidence that suggests that corporations with good corporate governance characteristics, such as larger boards and a higher proportion of independence directors on the board, are more effective monitors of earnings management behaviour. This motivates an examination of the moderating effect of corporate governance characteristics in another context: that of the relation between corporate governance performance and the probability of CEO dismissal in Australia.

3. Hypotheses Development

This section presents hypotheses relating to the relation between the probability of CEO dismissal and corporate performance, and the moderating role of corporate governance characteristics indicative of either effective monitoring or management entrenchment in that

relation. The characteristics considered are board size, board composition, CEO ownership, CEO tenure and ownership concentration. Management entrenchment has the potential to undermine the independence and effectiveness of the board in dismissing a poorly performing CEO, and hence these hypotheses seek to identify the significance of these corporate governance characteristics in moderating the relation between corporate performance and the probability of CEO dismissal.[3]

Relation between Corporate Performance and the probability of CEO Dismissal

A function of boards of directors is to manage the corporation in the best interests of its shareholders, which means to maximise shareholder value, or the return on their investment. One important part of this function is to reduce agency costs, which include replacing poorly performing managers (John and Senbet 1998). Naturally, the poorer their performance, the greater is the likelihood of CEO dismissal. A negative relation between corporate performance and the probability of CEO dismissal has been documented across a range of countries. These include Australia (Wells 2002, Godfrey, Mather and Ramsay 2003), the U.S. (Coglan and Schmidt 1985, Warner, Watts and Wruck 1988) and the U.K. (Conyon and Florou 2002). This motivates the first hypothesis, which is expressed in alternative form as follows.

H1: *Corporate performance is negatively associated with the probability of CEO dismissal.*

Consistent with prior studies, in this paper, corporate performance is measured using both accounting data (Return on Assets) and share market data (Share Returns). It is likely that

[3] These hypotheses are grounded in the agency theory view of boards of directors (Fama and Jensen 1983). It must be noted that Jensen (1993) argues that further insights into board behaviour could be gained by using lenses that complement this view.

boards of directors in Australia would focus on both measures of corporate performance. Hence, the current study is also expected to contribute to the evidence on the relation between accounting and share market performance measures.

The Influence of Corporate Governance Characteristics on the Probability of CEO Dismissal

Arguments to motivate the testing of particular corporate governance characteristics that are expected to moderate the relation between corporate performance and the probability of CEO dismissal are presented below. The general form of the two sets of hypotheses used to test these relations is then presented.

(a) Board Size

Small boards may be more effective in disciplining poorly performing CEOs, because it may be easier for a smaller group of people to make and implement decisions. This is particularly likely to be true of decisions that require board unanimity, such as CEO replacement (Lipton and Lorsch 1992, Jensen 1993). Evidence of a negative relation between board size and the probability of CEO dismissal has been documented using U.S. data (Yermack 1996, Faleye 2003)[4] and also across ten Organisation for Economic Co-operation and Development (OECD) countries (Andres Alonso, Azofra and Lopez Iturriaga 2005). Conversely, larger boards may offer the corporation a greater range and/or level of expertise. Coles, Daniel and Naveen (2005) provide evidence on the value of a larger board of directors, for corporations whose operations are more complex and who can benefit from the enhanced advice and counsel of a greater number of board members. However, this effect is not expected to extend to all corporations.

[4] However, Hillier, Linn and McColgan (2003) documented U.K. evidence that board size is not a determinant of either CEO performance or the relation between performance and CEO turnover.

On the basis of the prior evidence in the literature, smaller boards are expected to contribute to good corporate governance. Hence the relation between board size and the probability of CEO dismissal is expected to be negative.

(b) Board Composition

A proxy for board independence, board composition refers to the mix of executive and non-executive directors on the board. It has been suggested that outsider-dominated boards are likely to be more effective in monitoring CEO performance (Colley, Doyle, Logan and Stettinius 2003). There are several potential reasons for this. Outside directors generally have experience in conducting these reviews for a range of corporations. They are not likely to be encumbered in the operational activities of the corporation (Kiel, Nicholson and Barclay 2005). Most importantly, outside directors are likely to be more independent, as they have less self-interest in the performance of the corporation (Shailer 2004, Fama and Jensen 1983). Evidence from the U.S. (Weisbach 1988) and the U.K. (Hillier, Linn and McColgan 2003) suggests that the probability of CEO dismissal is greater for corporations with outsider-dominated boards.

Australian research on the value of outsider-dominated boards is limited. An exception to this is Matolcsy, Stokes and Wright (2004), who provide tentative evidence that boards with a majority of non-executive directors add value. A possible reason for this inconclusive evidence is that, in Australia, nearly all listed corporations have outsider-dominated boards (Shailer 2004). Hence, tests of whether such boards add value are plagued by limited cross-sectional variation in board composition.

In the Australian setting, an appropriate test is whether an increase in the percentage of outside directors on a board increases the probability of CEO dismissal, rather than whether outsider-dominated boards are more likely to dismiss poorly performing CEOs. Whilst the test for the influence of board composition on a board's propensity to dismiss the CEO is *a priori* harder to meet than that used in prior studies in other countries, a positive relation between an increase in the percentage of outside directors and the probability of CEO dismissal is expected.

(c) CEO Ownership

It can be argued that CEO ownership may be negatively related to the probability of CEO dismissal. When CEOs are themselves shareholders, there is potential for improved shareholder-manager goal congruence and hence lower agency costs. This may result in better CEO performance and less need for disciplinary action (Dahya et al. 1998). Less idealistically, CEOs with high levels of ownership may be able to entrench themselves. This would be costly for the corporation as such CEOs may engage in excessive self-serving behaviour (Stulz 1988) and are unlikely to support any moves to terminate their own employment (Morck, Shleifer and Vishny 1988).

Evidence regarding the relation between CEO ownership and the probability of CEO dismissal is mixed. Denis, Denis and Sarin (1997) and Conyon and Florou (2002) respectively provide U.S.- and U.K.-based findings of a negative relation. However, Dahya et al. (1998) and Conyon and Florou, using U.K. data, were unable to find evidence of management entrenchment.

On the basis of the foregoing arguments and this prior evidence, it is expected that the relation between CEO ownership and the probability of CEO dismissal will be negative.

(d) CEO Tenure

Like CEO ownership, CEO tenure may be a proxy for management entrenchment (Morck et al. 1988). The board and shareholders of corporations with long-serving CEOs may have developed the perception that the CEO is irreplaceable. Hence, their boards may be less likely to discipline the CEO for poor performance. Evidence from the U.S. indicates that CEO tenure is negatively related to corporate performance (Hermalin and Weisbach 1991) and the probability of CEO dismissal (Goyal and Park 2002). It is therefore expected that longer CEO tenure is not consistent with good corporate governance, and that the relation between CEO tenure and the probability of CEO dismissal will be negative.

(e) Ownership Concentration

There are *ex ante* reasons to expect that a concentration of ownership in the hands of institutional investors and other blockholders will increase the monitoring of CEOs. Institutional investors have a larger stake in investee corporations and have more resources than other investors, which may cause them to discipline poorly performing CEOs (Koh 2003). This may be particularly so in Australia, where the rarity of dual class capitalisations (Taylor and Whittred 1998) suggests that high ownership concentration is more likely to be accompanied by higher levels of voting power than in other jurisdictions.[5]

[5] Dual class capitalisations do not have the strong link between ownership concentration and voting rights that result from the traditional association of one vote to one share.

Institutional investors may also indirectly monitor CEOs. Instead of exercising their voting power to dismiss poorly performing CEOs, institutional investors may "vote with their feet" and sell their shares in such corporations. Parrino, Sias and Starks (2003), using U.S. data, provide evidence that supports this hypothesis. Their results suggest that institutional investors sell their shares prior to CEO dismissal and that the extent to which they do this is positively correlated with the size of their blockholding prior to the sale.[6] In Australia, however, it could be argued that the smaller share market makes it less likely that institutional investors would sell their shares if they perceive a CEO to be performing poorly. It is more difficult in Australia than in the U.S. to find equivalent substitute shares for portfolios.

Conversely, there are also reasons why institutional investors may be unwilling or unable to exercise their power either directly or indirectly to discipline poorly performing CEOs. Institutional investors are themselves large organisations encumbered by agency problems (Garvey and Swan 1994, Shleifer and Vishny 1997). Furthermore, institutional investors tend to be active portfolio managers. Hence, they may regard corporate governance issues as being of secondary importance compared to maximising portfolio returns (Bushee and Noe 2000, Koh 2003).

Evidence on the extent to which institutional investors actively monitor CEOs is mixed. Denis et al (1997) and Dahya et al. (1998) respectively produced U.S. and U.K. evidence that block ownership is positively associated with the probability of top executive turnover. However,

[6] Furthermore, the evidence of Parrino, Sias and Starks (2003) also indicates that boards are influenced by blockholders' portfolio management actions in deciding whether to dismiss CEOs for poor performance.

Hillier et al. (2003), using U.K. data, were unable to find evidence of a significant association. The results of Koh (2003), using Australian data, suggest that the decision by institutional investors to use their power to monitor CEOs depends on their level of ownership. The findings indicate that institutional investors with high (low) levels of ownership are likely (unlikely) to be concerned with monitoring CEOs. A caveat is that Koh examined the relation between institutional ownership and earnings management, rather than CEO dismissal.

Given the lack of conclusion in both the arguments and the empirical evidence on the relation between ownership concentration and the probability of CEO dismissal, no expectation on the direction of this relation is given in the hypothesis.

In summary, the hypotheses testing the relations between corporate governance characteristics and the probability of CEO dismissal are as follows.

H2: *(a) Board Size is negatively related to the strength of the association between corporate performance and the probability of CEO dismissal*

(b) Board Composition is positively related to the strength of the association between corporate performance and the probability of CEO dismissal.

(c) CEO Ownership is negatively related to the strength of the association between corporate performance and the probability of CEO dismissal.

(d) CEO Tenure is negatively related to the strength of the association between corporate performance and the probability of CEO dismissal.

For Ownership Concentration, the hypotheses are expressed in the null, a bi-directional form that is consistent with conflicting expectations.

H2(e): *In Australia, there is no association between ownership concentration and the strength of the relation between corporate performance and the probability of CEO dismissal.*

4. Data and Methodology

The initial sample includes the top 100 corporations by market capitalization listed on the Australian Stock Exchange (ASX) in every year from 1997 to 2004 inclusive. The top 100 corporations were chosen because they comprised approximately 90 percent of the total market capitalization in Australia during this period. These corporations are more likely than smaller corporations to report on their corporate governance characteristics, and to have the required data available over a suitably long period of time.

The sample selection procedure was as follows. The top 100 corporations based on market capitalization at both 1 January 1997 and 1 January 2004 were selected. Any corporation that appeared on either list stayed in the sample for the entire investigation period, regardless of changes in its market capitalization, unless it was delisted. This is similar to the sample selection approach of Wells (2002) and Conyon and Florou (2002). The benefit of selecting corporations at two independent dates is a reduction in the survivorship bias (Wells 2002).

This sample was filtered to exclude 17 investment trusts, because their management control mechanisms differ significantly from those of limited liability corporations. Nine corporations

for which data were unavailable were also excluded. Further, six corporations were excluded because they were delisted during 1997. This left a total of 108 corporations, including 73 that were listed for the entire period. The final sample comprised 741 corporation-years, for these 108 corporations over the period 1997 to 2004. By examining these corporations over an eight-year window, this study has regard for the temporal evolution of board characteristics, which is likely to reflect changes in the corporations' business models (Denis and Sarin 1999).

The annual report data for testing the hypotheses were collected from Aspect and the individual corporations' websites. The return data was collected from Datastream.

The dependent variable in the empirical models is a binary variable, equal to one if the most senior executive (CEO) changed and zero otherwise. Changes in CEO were ascertained by comparing the name of the CEO as listed in the corporation's annual report with that listed in the previous year. If the term "CEO" was not used, the variable was determined by looking at the name of the Group Managing Director or the Executive Chairman.

Each change in CEO was classified as forced (dismissal) or non-forced by examining on a case-by-case basis the corporation's announcements at the time of the change.[7] The source of the announcements was the Signal G database, which is maintained by Securities Industry Research Centre for Asia-Pacific (SIRCA). It contains the disclosures made by listed Australian corporations to comply with the Continuous Disclosure Requirements of the ASX.

[7] The classifications were originally made by one of the authors and subsequently checked by at least one of the other two co-authors, independently.

The criteria for a forced departure are based on a number of previous studies (Warner, Watts and Wruck 1988, Weisbach 1988, Conyon and Florou 2002, Hillier et al. 2003). None of the departures was overtly reported as a dismissal but when a phrase such as "The CEO ceased to be employed by the corporation" was announced and/or there was a period in which the corporation had an acting CEO before a successor was announced, it was classified as forced. Examples of non-forced departures were for reasons such as death/illness, merger/demerger, normal succession, and acceptance of an equivalent or better position elsewhere, and usually a successor was ready to take over the position as soon as the incumbent departed.

All retirements were classified as non-forced, for three reasons[8]. Firstly, it is not possible to decide *a priori* at what age a CEO would like to retire; secondly, age is not always disclosed by the corporation; and thirdly, some early retirements lead to other senior positions. However, we classified all resignations as forced, unless a clearly stated personal reason for the departure was provided.

There are two groups of independent variables: the corporation's performance measure variables, and indications of its corporate governance characteristics. Two measures of corporate performance were used: share return (calculated as the log of the ratio of the share price for the current reporting year to the share price for the previous year), and accounting earnings (measured as return on assets, ROA). The use of both performance measures is motivated by the expectation that they are complementary. Accounting earnings are likely to be more stable than share returns and less influenced by macroeconomic factors beyond

[8] This classification is in contrast to that used by Conyon and Florou (2002) and Warner, Watts and Wruck (1988).

managers' control (Conyon and Florou 2002). However, accounting earnings may be manipulated. Of particular concern is the possibility of earnings management at the time of CEO changes (Pourciau 1993, Wells 2002, Godfrey, Mather and Ramsay 2003). Use of share market performance measures has regard for evidence that boards take into account information in returns when deciding whether to replace CEOs (Coughlan and Schmidt 1985). Dahya, McConnell and Travlos (2002) also used both accounting and share price performance measures.[9]

Both performance variables were measured in the current year and with a one year lag because the timing of the CEO's departure in the current year may be more closely associated with either period. Furthermore, the board is likely to consider information contained in the prior year's performance when assessing whether CEO termination is appropriate (Coughlan and Schmidt 1985). Use of the two types of metrics in both the current and previous years is consistent with the prior literature (Conyon and Florou 2002, Warner et al. 1988).

The corporate governance characteristics are:

- Board Size (measured as the number of directors on the board),
- Board Composition (measured as the proportion of outside directors[10] on the board),
- CEO Ownership (measured as the percentage of shares owned by the CEO), and
- CEO Tenure (measured as the number of years served by the CEO in that role).

[9] Parrino et al. (2003) also used Return on Assets as an accounting-based performance measure.
[10] The definition of an outside director is similar to that of previous studies. It only includes directors who are not former employees, who are not substantial shareholders and who do not have substantial business interests in the corporation. Note that this definition differs to that used by the ASX, who classify directors as independent if it is more than 3 years since they were employed by the corporation.

- Ownership Concentration (measured as incidences of ownership of 5% or more of the shares by a single entity, excluding CEO),

Logistic regression (logit) was used to test the hypotheses because the dependent variable is a binary. The form of the model to test the relation between the probability of CEO dismissal and corporate performance (Hypothesis 1) is

$$L_i = \ln (P_i/(1 - P_i)) = \beta_1 + \beta_2 \text{ Corporate Performance} + \mu \quad (1)$$

where
L_i is the logit, the natural logarithm of the odds ratio.
P_i is the probability of CEO dismissal.
$(1 - P_i)$ is the probability of no CEO dismissal.
β_1 is the logit constant.
β_2 is the slope co-efficient of Corporate Performance.
Corporate Performance is measured with four proxies: Return on Assets (ROA) and Share Return (R) measured both currently and with a one year lag. These are included in separate models and all four are also included in one model in order to test for improved explanatory power.
μ is the error term.

The form of the model used to test Hypotheses 2, for the impact of the various corporate governance characteristics variables on the relation between the probability of CEO dismissal and corporate performance, is

$$\begin{aligned} L_i = \ln (P_i/(1 - P_i)) = {} & \beta_1 + \beta_2 \text{ Corporate Performance} + \\ & \beta_3 \text{ Corporate Governance variables} + \\ & \beta_4 \text{ Corporate Performance * Corporate Governance variables} + \mu \end{aligned} \quad (2)$$

where
Corporate Performance * Corporate Governance variables is a matrix of interaction terms.
β_3 represents the matrix of slope co-efficients on the five Corporate Governance variables:
Board Composition, CEO Ownership, CEO Tenure and Ownership Concentration
Corporate Performance * Corporate Governance variables are the interaction terms.
β_4 is the slope coefficient associated with these.
All other variables and coefficients are as defined previously.

5. Descriptive Statistics

Table 1 reports CEO changes by year. The overall CEO turnover rate was 13.8% with a forced turnover rate of 4.0%. The rate of forced turnover appears comparable with recent studies (Hillier et al. 2003 and Conyon and Florou 2002 both report forced turnover rates of around 4%). The proportion of overall CEO turnovers that were classified as forced, 29.4%, is slightly lower than the rates found in Hillier et al. and Conyon and Florou of 34.8% and 42.5% respectively.

Table 1 about here

Table 2 present descriptive statistics for the independent variables. The average board size of this sample is 8.5, which is substantially lower than Yermack's (1996) average of 12.3 using U.S. data, but slightly higher than Hillier et al's (2003) average of 7.1 using U.K. data. Also, the range for board size for this sample is notably less than for comparable studies. The average board in this sample comprised approximately 66% outside directors, which is consistent with previous Australian evidence (Matolcsy et al. 2004, Shailer 2004) but substantially higher than has been reported in other countries. Hillier et al. reported 25% outside directors in the U.K. and Denis et al. (1997) reported 50% for the U.S. The measurement of the proportion of outside directors as the increase in this variable, rather than its level, as explained in the previous section, is validated by these descriptive statistics.

The average CEO ownership of corporation shares is 2.5%, which is similar to that reported in the U.K. (Conyon and Florou 2002, and Dahya et al. 1998). However, the Australian maximum

in this study is 56% which is lower than the maxima reported in Conyon and Florou and Dahya et al. (89 and 60 percent respectively).

In this sample, over 95% of Australian corporations separate the positions of CEO and Chairman of the Board, compared to only 70% in the U.K. and 75% in the U.S. reported by Hillier et al. (2003) and by Goyal and Park (2002) respectively. The average CEO tenure for this sample was 6.6 years, which is significantly shorter than the 10.2 years reported in Goyal and Park for the U.S. This is consistent with the higher turnover rate found in this study, compared to previous work. Panel B of Table 2 reports that more than 80% of the corporations had at least one blockholder. The average blockholder ownership was 30%. Previous studies document lower incidence of blockholders and smaller percentages of shares held by blockholders.

Table 2 about here

Table 3 shows bivariate correlations between pairs of continuous independent variables. Panel A reveals that ROA is negatively correlated with board size ($p<0.10$) but is not significantly correlated with any of the other corporate governance variables. The negative correlation between ROA and board size is consistent with the U.S. finding in Yermack (1996) that corporations with small boards have higher values than those with large boards. Board size is positively associated with both the fraction of outside directors and CEO ownership ($p<0.10$).

Tenure is positively correlated with the percentage of shares held by CEOs ($p<0.01$). This is consistent with management entrenchment. Similarly, the negative correlation between tenure and the fraction of outside directors ($p<0.01$) is consistent with CEOs being insulated from dismissal by inside directors who are more likely to vote for the incumbent CEO. Tenure is negatively correlated with the percentage of block ownership ($p<0.05$).

CEO ownership is negatively associated with both the fraction of outside directors and block ownership at the one and five percent significance levels respectively. Block ownership is also negatively associated with board size and the fraction of outside directors (both $p<0.01$).

Panel B reveals that all of the bivariate correlations between the performance measures are positive and significant ($p<0.05$), except for the correlation between current and prior year return. The positive first-order autocorrelation between earnings suggests that earnings shocks experienced by the sample corporations tended to persist, rather than mean revert, in the following year. This alleviates concern as to whether the information used to dismiss CEOs is reflected in current or previous year's earnings. The significant positive correlations between ROA and Return (lag), and ROA (lag) and Return, are consistent with earnings measured over yearly intervals not reflecting value-relevant information in the correct period[11] (Easton, Harris and Ohlson 1992).

[11] Potential explanations for this are GAAP limitations or accruals manipulation.

The positive correlations between contemporaneous earnings and returns (i.e., the correlations between ROA and Return, and ROA (lag) and Return (lag)) can be interpreted as evidence that earnings accurately capture value-relevant events (Dechow 1994).

Table 3 about here

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6. Results

Table 4 shows the results of the test of H1 (that the probability of dismissal is inversely related to corporate performance) for the contemporaneous performance measures. Results for regressions using only lagged performance measures are not reported in this paper because they have lower explanatory power than those using contemporaneous measures. This lower explanatory power of the lagged performance measures is evident in the reported results for Models (3) and (6) in Table 4, which include all four performance measures.

All of the reported regressions have high explanatory power. This is evidenced by the fact that the G_1 statistics (that test the null hypothesis that all slopes are equal) are significant at the one percent level, and at least 73% of the pairs are concordant. Models (1) and (2) report bi-variate regressions of the probability of CEO dismissal against ROA and Return respectively. In each case, the coefficient of the contemporaneous performance measure has a negative and significant association ($p<0.01$) with the probability of dismissal. This evidence supports H1 that the probability of CEO dismissal is inversely related to corporate performance. Model (3), which incorporates all four performance measures, reports negative and significant coefficients

for both contemporaneous measures (i.e., ROA and Return) at the one and five percent levels respectively. This suggests that performance measures in the year prior to the dismissal of a CEO do not capture information that was used in the decision to terminate the CEO's employment.

The drop in significance of Return from the one percent level in Model (2) to the five percent level in Model (3) seems to be driven by multicollinearity between Return and ROA, indicated by the significant association ($p<0.01$) between the two variables, reported in the descriptive statistics in Table 3. The fact that the coefficients of both contemporaneous performance measures are significant in Table 4 indicates each variable has incremental explanatory power, notwithstanding the presence of multicollinearity. It can be concluded that earnings and stock market returns provide complementary information that is used in decisions regarding CEO termination. However, the coefficients of both lagged performance variables are insignificant in Models (3) and (6). This indicates that the prior year's performance contains no information relevant for CEO termination decisions incremental to that provided by the current year's performance.

Models (4) to (6) are identical to Models (1) – (3), except that the former include as explanators the continuous corporate governance variables used in this study. The purpose is to investigate whether the associations between corporate performance and the probability of CEO dismissal reported in Models (1) – (3) merely capture the effect of other determinants of CEO dismissal correlated with corporate governance attributes. The coefficient attaching to ROA is significant and negative in Models (4) and (6) ($p<0.01$), even after controlling for the effect of possible

correlated omitted variables. The coefficient of Return is negative and significant ($p<0.01$) in Model (5). This suggests that the association between stock market performance and the probability of CEO dismissal documented in Model (2) is not driven by the other potential determinants considered in this paper. However, Return is not significantly related to the probability of CEO dismissal in Model (6). This is likely due to the positive correlation between ROA and Return. Neither ROA (lag) nor Return (lag) has a significant negative association with the probability of CEO dismissal in Model (6) or in unreported results using only these lagged performance measures. This strengthens the conclusion that the information used in making CEO termination decisions is more accurately captured by current, rather than prior year's corporate performance.

Table 4 about here

Table 5 reports the results of tests of H2 (factors that determine the strength of the inverse relation between corporate performance and the probability of CEO dismissal). Only results using ROA as the performance measures are reported for parsimony, and because ROA is the only significant performance measure in Model (6). All of the regressions have high explanatory power. This is evidenced by the fact that for all of the models, the G_1 statistics of the null hypotheses that all slopes are equal are rejected at the one percent significance level. Furthermore, in each case, at least 73% of the pairs are concordant.

In three out of five cases, the coefficients of ROA are negative and significant ($p<0.05$), as expected. The other two cases (Models (1) and (2)) appear to be plagued by multicollinearity. In Models (1) and (2), none of the independent variables have significant slope coefficients;

however, the models are highly significant overall ($p<0.01$). This is a strong indication of multicollinearity (Gujarati 1988).

In general, the results reported in Table 5 are consistent with a failure to reject the null for H2: board size, fraction of outside directors, CEO share ownership, CEO tenure, and blockholder ownership are not determinants of the strength of the inverse relation between corporate performance and the probability of CEO dismissal.

Table 5 about here

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7. Further Analysis of Results

Possible concerns with the results presented in the previous section are discussed in this section, and the results of further analyses are presented.

Firstly, the results in this paper are consistent with the explanation that the CEO is dismissed in response to poor corporate performance in the same year. However, an alternative explanation is that the direction of causation is from the change in CEO to poor corporate performance. One scenario that fits this direction of causation is when a CEO who has been replaced for reasons unrelated to corporate performance takes advantage of his or her first year in office to "take an earnings bath" (write off as many deferred expenses and losses as possible). In the year of the change in CEO, the corporation would experience a poor earnings performance, which might also result in poor share market performance.

The "big bath" explanation implies that corporations with new CEOs would exhibit negative first-order autocorrelation in earnings, due to the lower level of earnings in the year of replacement compared to the previous year. This effect would be amplified to the extent that the departing CEO had managed earnings upwards at the end of his or her tenure (Dechow and Sloane, 1991).

We do not find this alternative explanation consistent with our findings. As reported in Table 3 Panel B, the current and lagged performance measures for both accounting performance and share market performance (for all of the corporations included in this study) are significantly positively correlated. In addition, when these correlations are calculated for only the 30 corporations that experienced a CEO dismissal in the period of this study, the performance measures are again significantly positively correlated[12].

A further analysis of the feasibility of the earnings bath explanation was undertaken by re-running the logit regressions in this study, with the dependant variable redefined firstly to distinguish all corporations that experienced a CEO change, and secondly to distinguish those corporations that experienced a non-forced change of CEO. The two additional logit regressions used the same set of independent variables as for H1. As reported previously in this paper, the relation between the probability of CEO dismissal and corporate performance is negative, but the two further analyses indicate that the relation is insignificant between all changes of CEO and corporate performance, and positive between non-forced changes of CEO and accounting corporate performance.

[12] These results are not reported in the paper.

A "big bath" would imply negative correlation between performance measures in consecutive years, for all corporations experiencing a change of CEO. The results reported here indicate positive correlation, both for all corporations, and for the subset of corporations that dismissed their CEOs. Further, the negative relation between change of CEO and corporate performance is only evident for CEO dismissals, and not for non-forced changes or for all CEO changes.

A limitation to the tests in this study is that the models are plagued by lack of variation in the dependent and independent variables. The descriptive statistics for the data sample, presented in Table 1, indicate that of the 741 corporation-years examined, there are only 102 instances of CEO turnover, of which only 30 are classified as forced. Furthermore, the sample consists of less than 100 corporations for which data is collected for up to eight years.

The multiple inclusions of observations from the same corporations may reduce the effective degrees of freedom of the models, which reduces the power of the statistical tests. To address this issue, the logit regressions were re-run for two sub-periods, 1997-2000 and 2001-2004, so that the maximum number of observations for the one corporation is reduced from eight to four. The (unreported) results are qualitatively similar to those for the pooled investigation period. For both sub-periods, the corporate governance variables are not significant, and the negative relation between performance measures and the probability of CEO dismissal is evident.

Concern over "repeat sampling" from the same corporation is also reduced by evidence in the literature that changes in corporations' board structures are associated with contemporaneous

changes in their business models (Denis and Sarin, 1999). There may be fewer problems caused by including up to eight observations for the same corporation in the sample, due to operational and structural changes that are likely to have occurred in those corporations over the period.

The lack of cross-sectional variation in the dependent variable is addressed by re-running the logit regressions for a sub-sample in which CEO dismissals are more concentrated. Table 6 reveals that 22 (73%) of the 30 CEO dismissals are for corporations that have ROA in the lowest quartile of the whole sample. This is consistent with the results for H1, that the probability of CEO dismissal is negatively associated with corporate performance. The (unreported) logit results for corporations in the lowest quartile of the sample are qualitatively similar to those for the whole sample. The lack of significance of the corporate governance variables in tests of H2 do not appear to result from the infrequency of CEO dismissals in the sample.

Table 6 about here

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8. Conclusions

This study investigates the relation between the probability of CEO dismissal and corporate performance in Australia, and the determinants of the strength of this relation. The results report a negative association between corporate performance and the probability of CEO dismissal, consistent with that found in other jurisdictions. The results indicate that, in Australia, in the period of this study (1997 – 2004), CEOs were dismissed following poor corporate performance. This relation was not affected by corporate characteristics that are considered to enhance board performance and good corporate governance: the size of the

board of directors, or its level of independence. It was not affected by corporate characteristics that are consistent with CEO entrenchment: CEO share ownership, or CEO tenure. It was also not affected by the concentration of share ownership.

The results reported in this study provide evidence that information contained in earnings and share returns is complementary and relevant for board decisions about CEO dismissal. The results also suggest that current year performance metrics dominate their prior year counterparts in this regard.

International evidence suggests that smaller boards are more likely to dismiss poorly-performing CEOs, whereas no such relation is found in this study. Australian boards in the sample ranged between 3 and 17 members, which is a lower range than is reported in U.S. and U.K. studies. It is possible that due to the nature of Australian boards, our sample did not include enough larger boards for a negative relation to be evident.

Similarly, prior studies have found a positive relation between board independence and the probability of CEO dismissal, but Australian boards on average are outsider dominated, whereas U.S. and U.K. boards studied in the prior literature are not. It is possible that due to the nature of Australian boards, our sample contains insufficient variation in the degree of outsider board domination for a positive relation to be evident.

The prior literature contains mixed evidence on the relation between CEO share ownership and the probability of CEO dismissal. Our findings are consistent with Dahya et al (1998) and

Conyon and Florou (2002) who also do not find evidence of management entrenchment. Our findings do not support the results in the prior literature that CEO tenure is negatively related to the probability of CEO dismissal in the U.S. (Goyal and Park 2002), although CEO tenure in our sample is lower than that in their U.S. sample. Given the range of CEO tenure in Australia is one to 26 years, this result is somewhat surprising. Finally, the prior literature contains mixed results regarding the relation between ownership concentration and the probability of CEO dismissal. There is U.S. and U.K. evidence of a positive relation, and also U.K. evidence of no relation. Our findings are therefore consistent with Hillier et al (2003).

In summary, there are several possible explanations for the differences between this study and prior studies. Institutional differences between Australia and other countries, notably the U.S. and the U.K., may explain some of the differences. For example, in the sample used, Australian boards were smaller, had a higher proportion of outside directors, and were more likely to employ a separate CEO and chairman. Also, Australian corporations in this study had a higher level of block ownership, a lower CEO ownership, and shorter CEO tenure. On average, the corporate governance features of the corporations in this sample fell within the desirable range indicated in prior studies. The differences between the results of this study and prior studies could also be attributable to the differences in sampling procedures, or the differences in the time periods covered.[13]

Limitations of this study relate to the sample selection from the top 100 corporations, and the measurement of variables. Due to the selection of the sample from the top 100 corporations in

[13] 1997 to 2004 was a period of strong macro-economic conditions in the Australian economy.

Australia, the results may not be generalisable to smaller corporations in Australia. It is also acknowledged that the proportion of outside directors might be a poor proxy for board independence. It is used because it is a proxy for independence in the prior literature, and recommended as a good governance procedure in practice. For example, Recommendation 2.1 of the principles and recommendations issued by the ASX Corporate Governance Council states that "a majority of the board should be independent directors". Similarly, the measurement of ownership concentration by the percentage ownership of blockholder shareholders is potentially a poor proxy. Finally, the results of this study depend on the accuracy of the classification of CEO turnover as forced and non-forced.

Table 1 - CEO Turnover by Sample Corporation-Year

Year	Number of corporations	Number of corporations (CEO turnover rate)		
		All changes	Forced changes	Non-forced changes
1997	86	9 (10.47%)	4 (4.65%)	5 (5.81%)
1998	94	13 (13.83%)	5 (5.32%)	8 (8.51%)
1999	95	11 (11.58%)	2 (2.11%)	9 (9.47%)
2000	97	17 (17.53%)	4 (4.12%)	13 (13.40%)
2001	95	18 (18.95%)	6 (6.32%)	12 (12.63%)
2002	94	11 (11.70%)	2 (2.13%)	9 (9.57%)
2003	91	14 (13.89%)	4 (4.40%)	10 (10.99%)
2004	89	9 (10.11%)	3 (3.37%)	6 (6.74%)
Total	741	102 (13.77%)	30 (4.05%)	72 (9.72%)

Table 2 - Descriptive Statistics Relating to the Independent Variables

Panel A - Continuous Variables

Continuous Variable	Mean	Median	Maximum	Minimum	St. Dev.	N
ROA	0.04945	0.04628	0.75014	-0.58278	0.07376	741
ROA (lag)	0.04773	0.04435	0.75014	-0.58278	0.07260	719
Return	0.05146	0.06013	0.77045	-1.32773	0.15317	682
Return (lag)	0.04941	0.05800	0.63446	-1.32773	0.15025	658
CEO Tenure (Years)	6.552	5	26	1	4.733	717
CEO Ownership %	2.524	0.0379	56.108	0	8.345	738
Board Size	8.4784	8	17	3	2.4269	740
Fraction of Outside Directors	0.65577	0.71429	1	0	0.22262	740
Blockholder Ownership %	30.345	27.555	95.8	0	23.750	728

where
ROA = Return on Assets (net profit after tax / book value of total assets)
ROA lag = Return on Assets in the prior year
Return = log of (Return of the current year divided by the return of the prior year)
Return lag = log of (Return of the prior year divided by the return of the year before)
CEO Tenure = Number of years that the CEO has held the position
CEO Ownership % = Number of ordinary shares held by the CEO / total number of ordinary shares
Board Size = Number of directors on the board
Fraction Outside Directors = Number of outside directors / Board Size
Blockholder Ownership % = Percentage of ownership held by investors with at least five percent of the shares

Panel B - Categorical Variables

Categorical Variable	Percentage of observation of each category	
	Split	No Split
CEO/Chairman Split	95.37	4.63
	Blockholder Present	Blockholder Absent
Presence of Blockholder	83.13	16.87

CEO/Chairman Split = 1 if the same person holds the position of CEO/Managing Director and Chairman of the Board of Directors and 0 otherwise
Presence of Blockholder = 1 if the corporation had at least one shareholder with an ownership level exceeding 5%.

Table 3 – Pearson Correlations between Pairs of Continuous Variables

Panel A – Corporate Governance Variables

	ROA	Board Size	Fraction Outside Directors	% CEO Ownership	CEO Tenure
Board Size	-0.092*				
Fraction Outside Directors	-0.045	0.082*			
CEO Ownership %	0.010	0.071*	-0.224***		
CEO Tenure	0.035	0.005	-0.224***	0.430***	
Block Ownership %	0.016	-0.170***	-0.484***	-0.096**	-0.096**

where
ROA = Return on Assets (net profit after tax / book value of total assets).

Panel B –Corporate Performance Measures

	ROA	ROA (lag)	Return
ROA (lag)	0.383***		
Return	0.250***	0.092**	
Return I (lag)	0.195***	0.239***	0.048

where
ROA = Return on Assets (net profit after tax / book value of total assets) in the current year
ROA (lag) = Return on Assets in the prior year
Return = log of (Return of the current year divided by the return of the prior year)
Return (lag) = log of (Return of the prior year divided by the return of the year before)

Board Size = Number of directors on the board
Fraction Outside Directors = Number of outside directors / total number of directors
CEO Ownership % = Number of ordinary shares held by the CEO / total number of ordinary shares
CEO Tenure = Number of years that the CEO has held the position
Blockholder Ownership % = Percentage of ownership held by investors with at least five percent of the shares

Two-tailed Pearson correlations are reported.

*** denotes significance at the one percent level
** denotes significance at the five percent level
* denotes significance at the ten percent level

Table 4 – Logit Regressions of CEO Dismissal on Corporate Performance Measures

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-2.93 (-14.90)***	-3.16 (-15.59)***	-3.10 (-12.30)***	-1.80 (-1.28)	-1.68 (-1.19)	-2.29 (-1.43)
ROA	-8.99 (-4.41)***		-8.41 (-3.74)***	-9.78 (-3.98)***		-10.06 (-3.42)***
ROA (lag)			2.28 (0.81)			2.30 (0.82)
Return		-3.75 (-3.34)***	-2.43 (-2.08)**		-3.11 (-2.49)***	-1.44 (-1.13)
Return (lag)			-0.41 (-0.26)			0.55 (0.30)
Board Size				-0.01 -(0.06)	-0.03 (0.30)	-0.02 (-0.12)
Fraction Outside Directors				-1.05 (-0.93)	-0.88 (-0.80)	-0.74 (-0.60)
CEO Ownership %				0.02 (0.54)	0.02 (0.51)	0.02 (0.55)
CEO Tenure				-0.21 (-2.57)***	-0.23 (-2.72)***	-0.18 (-2.08)**
Blockholder Ownership %				0.02 (1.59)	0.01 (1.24)	0.02 (1.55)
Number of Observations	742	682	656	703	646	622
Goodness of Fit Metrics						
Log-Likelihood Ratio	-114.14	-107.32	-91.80	-95.93	-92.03	-78.02
G_1 test that all slopes are zero	22.97***	12.65***	28.797***	43.50***	27.56***	40.79***
Percentage of Pairs that are						
- concordant	74.2	73.7	78.9	81.4	79.1	84.2
- discordant	23.6	23.9	19.2	17.5	19.5	14.7
- ties	2.2	2.4	1.8	1.1	1.4	1.1
- total	100.0	100.0	100.0	100.0	100.0	100.0

where

ROA	= Return on Assets (net profit after tax / book value of total assets) in the current year
ROA (lag)	= Return on Assets in the prior year
Return	= log of (Return of the current year divided by the return of the prior year)
Return (lag)	= log of (Return of the prior year divided by the return of the year before)
Board Size	= Number of directors on the board
Fraction Outside Directors	= Number of outside directors / total number of directors
CEO Ownership %	= Number of ordinary shares held by the CEO / total number of ordinary shares
CEO Tenure	= Number of years that the CEO has held the position
Blockholder Ownership %	= Percentage of ownership held by investors with at least five percent of the shares

Asymptotic Z-statistics for the significance of the intercept and slope coefficients are reported in parentheses.

*** denotes significance at the one percent level; ** denotes significance at the five percent level; * denotes significance at the ten percent level

One-tailed significance levels are reported for the slope coefficients of ROA, ROA lag, Return and Return lag. Significance levels reported for the intercept coefficients and all other slope coefficients are for two-tailed tests.

Table 5 – Logit Regressions of the CEO Dismissal on ROA, Corporate Governance Variables and Interaction Terms between ROA and Corporate Governance Variables

	Anticipated Sign of Coefficient	(1)	(2)	(3)	(4)	(5)
Intercept	?	-3.18 (-4.29)***	-2.06 (-3.71)***	-2.89 (-14.33)***	-1.86 (-5.22)***	-3.95 (-9.42)***
ROA	-	7.48 (0.92)	-5.28 (-0.80)	-8.80 (-4.24)***	-6.61 (-1.87)**	-8.53 (-2.46)***
Board Size	?	0.03 (0.38)				
Fraction Outside Directors	?		-1.41 (-1.62)			
CEO Ownership %	?			-0.02 (-0.64)		
CEO Tenure	?				-0.20 (-2.68)***	
Blockholder Ownership %	?					0.03 (3.12)***
ROA * Board Size	+	-2.22 (-2.01)				
ROA * Fraction Outside Directors	-		-6.15 (-0.60)			
ROA * CEO Ownership %	+			-0.11 (-0.27)		
ROA * CEO Tenure	+				-1.06 (-1.55)	
ROA * Blockholder Ownership %	?					-0.01 (0.07)
Number of Observations		741	741	739	718	729
Goodness of Fit Metrics						
Log-Likelihood Ratio		-111.51	-112.04	-113.73	-102.44	-105.97
G_1 test that all slopes are zero		28.16***	27.10***	23.55***	38.06***	31.90***
Percentage of Pairs that are						
- concordant		77.6	78.1	73.9	79.4	74.3
- discordant		20.1	19.7	24.0	19.3	23.2
- ties		2.3	2.2	2.1	1.2	2.5
- total		100.0	100.0	100.0	100.0	100.0

where

ROA	= Return on Assets (net profit after tax / book value of total assets) in the current year
Board Size	= Number of directors on the board
Fraction Outside Directors	= Number of outside directors / total number of directors
CEO Ownership %	= Number of ordinary shares held by the CEO / total number of ordinary shares
CEO Tenure	= Number of years that the CEO has held the position
Blockholder Ownership %	= Percentage of ownership held by investors with at least five percent of the shares

Asymptotic Z-statistics for the significance of the intercept and slope coefficients are reported in parentheses.

*** denotes significance at the one percent level; ** denotes significance at the five percent level; * denotes significance at the ten percent level

One-tailed significance levels are reported for the coefficients of the variables for which there is a directional expectation of the association with the probability of CEO dismissal. Significance levels reported for the other coefficients are for two-tailed tests.

Table 6 – Frequency and Cumulative Frequency of CEO Dismissals by ROA

ROA by Percentile	Number of Dismissals	Frequency of Dismissal	Cumulative Frequency of Dismissal
0%-10%	18	60.0%	60.0%
10%-25%	4	13.3%	73.3%
25%-50%	1	3.4%	76.7%
50%-75%	2	6.6%	83.3%
75%-90%	1	3.4%	86.7%
90%-100%	4	13.3%	100.0%
Total	30		

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