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Australian CEO Remuneration

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Abstract

Cross-sectional analysis of the remuneration paid by a sample of 1144 listed Australian companies in 2006 to their CEOs highlights the variation in the level and composition of remuneration both within and across industries. Average annual CEO remuneration for 2006 is \$730,000 with 79% short-term, 14% long-term and 7% post-employment remuneration. These components of remuneration structure, company size and corporate governance measures provide insight into the variation in CEO remuneration. There is no evidence of a positive relation between current year CEO remuneration and following year performance.

JEL Classification: G34

Keywords: CEO remuneration; performance sensitive remuneration; industry and company effects; board composition and size.

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1. Introduction

There has been considerable growth in CEO remuneration in recent years. For example, the increase in total remuneration for the top 100 Australian companies for the seven years from 2002 to 2008 inclusive averaged 12% per annum.¹ Discussion in the Australian press points to a concern about this rapid growth in CEO remuneration.² A question arises as to what is an appropriate level of remuneration and what determines variation in remuneration across companies? Concerns about excessive CEO remuneration have been forcefully expressed in the past, (Fels 2004; Saulwick & Coorey 2009) although a recent productivity commission report (Productivity Commission 2009) takes a somewhat more tempered view, with support for the Commission's recommendations appearing in the press (Swan 2010). While we can provide little insight into whether the level of remuneration is appropriate, this study provides an examination of the cross sectional variation in CEO remuneration for a large sample of listed Australian companies for the year 2006.

The CEO is responsible for the management of the company and, given the separation of management and ownership, agency conflicts can lead to divergence between CEO objectives and those of the shareholders (Jensen & Meckling 1976; Jensen & Murphy 1990). Commentators often ignore the scarcity of superior management skills, yet failure to secure a trustworthy and effective CEO can have

¹ Total CEO remuneration includes options and shares. This information was obtained from a series of research papers entitled "CEO pay in the top 100 companies" available from the Australian Council of Superannuation Investors web site (<http://www.acsi.org.au/>). The actual % change in total CEO compensation for the top 100 firms was 22% for 2001-2002, -2% for 2002-2003, 24% for 2003-2004, 6% for 2004-2005, 21% for 2005-2006, 21% for 2006-2007 and -7% for 2007-2008.

² More recent examples include articles by Jane Cadzow (Outrageous Fortune, Good Weekend, The Sydney Morning Herald, 13 February 2010) and Adele Ferguson and Scott Murdoch (Market split over exec pay, Finance, The Australian, 1 October 2009).

deleterious effects on company performance.³ Even with an effective CEO, it is still necessary to ensure that remuneration agreements and monitoring align CEO and shareholder objectives, (Kole 1997) and that appropriate shareholder returns are achieved.⁴ There are two approaches used to explain CEO remuneration, optimal contracting and managerial power, and both approaches provide considerable insight into the CEO remuneration problem (Bebchuk & Fried 2003; Edmuns & Gabaix 2009). Indeed, recent increases in CEO remuneration can be explained by more complex optimal contracting models as well as by management power arguments (Edmuns & Gabaix 2009).

We focus on the remuneration paid by Australian listed companies to their CEOs as reported in their annual reports for the year ending in 2006 using a sample of 1,144 listed Australian companies. The year 2006 is chosen as it follows the Australian adoption of the international accounting standards (IFRS), which resulted in a considerable improvement in the quality of corporate remuneration disclosure. Average annual CEO remuneration for the year ending in 2006 is \$730,000 with 79% short-term remuneration, 14% long-term remuneration and 7% post-employment remuneration. CEO remuneration is measured in total dollars paid as well as remuneration relative to industry average and while there is limited evidence of a statistically significant link between CEO remuneration and company performance, there is evidence of size, governance, growth options and remuneration structure effects on both CEO remuneration and company performance in this study. The following section reviews the literature, with data description provided in Section 3.

³ Comparison of founder/CEOs like Bill Gates at Microsoft and Kenneth Lay at Enron provide some insight into the impact of CEO quality on long-term survival and performance of a corporation. Choice and oversight of the CEO are crucial tasks for the board of directors.

⁴ A particularly striking example of the failure to achieve alignment is evident in the Ralston Purina Company case (Campbell & Wasley 1999). Further, there is some question about the actual link that might exist between compensation and performance (Baker *et al.* 1988).

Results are discussed in Section 4 and Section 5 concludes the paper.

2. Literature Review and Hypothesis Development

While it is expected that CEO remuneration will compensate for past performance, optimal contracting suggests that the board of directors, acting in the interests of the shareholders, choose remuneration contracts that best align the incentives of the CEO with those of the shareholders to maximise company value. Yet, managerial power could bias the remuneration decision in favour of the CEO (Bebchuk & Fried 2003). This has implications both for CEO remuneration decisions and for the link that can exist between CEO remuneration and company performance

2.1 CEO remuneration

Prior company performance, the shareholders and the board of directors each play a role in CEO remuneration decisions. A substantial shareholder, whether or not represented on the board, has incentive to closely monitor CEO remuneration (Bhagat & Bolton 2008; Del Guercio *et al.* 2008). Yet, a large board dominated by executive directors may feel less constrained in granting excessive remuneration to a CEO who is also chairman of the board. Ultimately, the CEO remuneration package should reward the CEO for superior performance, taking into account the level of task complexity as well as controlling for the costs arising from shirking and negative NPV investment. But, managerial power could lead to remuneration levels that are inconsistent with those expected under the traditional optimal contracting model of the company.

2.1.1 Prior or present performance

It is expected that CEO remuneration should reflect current and past performance, but Australian research into the relation between CEO remuneration and performance is inconclusive. A large body of overseas evidence has examined whether CEO remuneration is explained by performance (Murphy 1985; Core *et al.* 1999; Bertrand & Mullainathan 2001; Hermalin & Wallace 2001; Garvey & Milbourn 2006; Leone *et al.* 2006; Rajgopal *et al.* 2006). Early Australian research into the link between CEO remuneration and performance found no statistically significant relationship (Izan *et al.* 1998), although more recent research identifies a link between company performance, both past and present, and CEO remuneration (Merhebi *et al.* 2006). In these studies, CEO remuneration is regressed on various performance measures as well as control variables including company size. Given that it can be difficult to disentangle performance and remuneration reported for the same period, prior period performance is used as an instrument for performance in the analysis that follows. This gives rise to the first hypothesis; that performance is positively related to CEO remuneration.

Hypothesis 1

1. Prior period return on assets and market to book ratio are positively related to total CEO remuneration.

2.1.2 The Components of the CEO remuneration package

Longer-term incentives can be created through the use of stock options, restricted shares and long-term performance plans, based on growth in earnings over a number of years (Kole 1997) but the difficulty for the board of directors is in selecting the most appropriate remuneration strategy for their company. If poorly designed, equity based remuneration contracts need not result in superior performance (Campbell & Wasley 1999). Yet, the early literature supported the use of market based remuneration as a means of aligning CEO and shareholder objectives (Jensen &

Murphy 1990). Thus it is important that, where share or option grants are considered, the board ensures the scheme actually aligns CEO and shareholder objectives (Aggarwal & Samwick 1999; Ross 2004). If a risk-averse CEO is faced with an easy target or a target that can be manipulated then there is a tendency for the CEO to maintain the status quo or manipulate the target and thus avoid unnecessary risk⁵. Further, a poorly diversified risk averse CEO will tend to value share and option grants somewhat less than the market might value these securities (Hall & Murphy 2000a; Hall & Murphy 2000b; Hall & Murphy 2002, 2003). Finally, an expensive though poorly constructed market based incentive scheme could result in reduced rather than superior performance (Ryan and Wiggins, 2001).

The level of growth options, equity agency costs and CEO power are likely to effect the final remuneration package offered to the CEO. For example, companies with high levels of growth options may prefer longer term remuneration, including share and option based incentive plans, more than companies with low levels of growth options (Baber *et al.* 1996; Ryan & Wiggins 2001). Indeed, growth companies often pose special problems for the board of directors as the board may not have the expertise to effectively monitor a highly qualified CEO in charge of a complex business. Market based remuneration can help to align CEO and shareholder objectives in these circumstances. Alternatively, with a large company operating in a stable low tech industry, the board may be able to monitor CEO behaviour more accurately and so CEO remuneration packages for this type of company could rely less on longer term remuneration and more on shorter term remuneration like fixed salary and bonus payments. Thus, ignoring managerial power, the components used

⁵ Changing the terms of executive stock options provides one example of target manipulation (Brenner *et al.* 2000) which can result in considerable ex post gain for a CEO.

in CEO remuneration should reflect characteristics of the company including its size, growth options and agency costs.

Hypothesis 2 is concerned with the determinants of the CEO remuneration package. There has been considerable growth in the level of CEO remuneration, particularly in large companies, as well as growing reliance on market based remuneration within the CEO remuneration package.

The preference for market based remuneration may arise from increasing managerial power. It is possible that market based remuneration could disguise the actual cost to the firm of the CEO's remuneration package. Further, in Australia, personal taxes could have a part to play in the choices made by a risk averse CEO. There is a personal tax advantage to receiving remuneration in the form of equity and option grants rather than cash. For example the capital gains tax on shares is 50% of the personal tax rate and dividend imputation reduces the personal tax on dividends by the amount of franking credits attached to the dividends. Where a cash payment is received the CEO must pay personal tax at their marginal personal tax rate, which would exceed the tax paid on market-based remuneration by a considerable margin for most resident Australian CEOs. While we do not argue that a risk averse CEO will choose to plunge into a remuneration package that consists of either 100% equity or 100% cash there are good reasons for the CEO to want to hold both asset classes in their compensation package.

Managerial power could explain a preference for equity but there are strong arguments supporting the incentive alignment benefits of equity based remuneration. Given the incentive alignment potential of market based remuneration it is predicted that the proportion of long term CEO remuneration will be increasing in the level of growth options and company size. While market based remuneration may increase

shareholder value if the remuneration scheme results in successfully aligning shareholder and CEO incentives, it may also dilute shareholder interest in the company where it is paid out of newly issued shares and so there is no clear prediction as to how shareholder value will relate to market based remuneration. Similarly, for board structure, there is no clear prediction as to how board structure will affect the structure of the CEO remuneration contract. Yet, if the board is captured by the CEO then not only will the CEO pay themselves more but they may prefer a greater proportion of market based remuneration because of the favourable personal tax treatment of market based remuneration in Australia under a dividend imputation tax system.

Hypothesis 2

- 2a. Proportion of market based (cash based) CEO remuneration is positively (negatively) correlated with size and growth options
- 2b. Total CEO remuneration is positively (negatively) correlated with the percentage of remuneration that is market based (cash based).
- 2c. CEO remuneration relative to industry average is positively (negatively) correlated with the percentage of remuneration that is market based (cash based).

2.1.3 Shareholder structure

The ownership structure of the company has implications for CEO remuneration.

There is a link between shareholder characteristics and CEO remuneration, particularly where active shareholders are openly critical of excessive or unwarranted CEO remuneration levels. For example, there is evidence that shareholder activism can have considerable influence over CEO excesses, with improvements in company performance and increased CEO oversight by the board (Bebchuk & Fried 2003; Del Guercio *et al.* 2008).⁶ CEOs are sensitive to shareholder concerns as there are costs for the CEO including damaged reputation and reduced shareholder support during

⁶ Institutional shareholding appears to be particularly important in the US (Hartzell & Starks 2003) though the extensive use of nominee shareholders by investors in Australian firms make accurate identification of institutional shareholding extremely difficult and error prone at best.

takeover bids or proxy contests. Thus, the more powerful and better organised the shareholder group the less outrageous the CEO behaviour (Bebchuk & Fried 2003).⁷ This leads to the third set of hypotheses. It concerns the relation between the level of CEO remuneration and three measures of shareholder concentration, shareholding of the top 20 shareholders, total shareholding of the block-holders (shareholders with more than 5%), and the shareholding of the largest shareholder. It is predicted that the more concentrated the shareholding, the better organised the shareholder group with the result that excessive CEO remuneration payments are curbed.

Hypothesis 3

3a. Percentage of shares held by the top 20 shareholders is negatively related with CEO remuneration.

3b. Percentage of shares held by blockholders is negatively related with CEO remuneration.

3c. Percentage of shares held by the largest shareholder is negatively related with CEO remuneration.

It should be noted that with very small firms it is possible that the CEO is also the majority shareholder in the company. In this case, the CEO remuneration policy will be based on the individual circumstances of the CEO and so there may be no correlation between shareholding and CEO remuneration.⁸

2.1.4 CEO power and the board of directors

A board that is captured by the CEO may take a different view of CEO remuneration to that taken by a board controlled by non-executive directors. A powerful CEO⁹ could use his remuneration contract to transfer wealth from the shareholders to

⁷ In particular, the impact of one large shareholder has been noted in the literature (Shleifer & Vishny 1986; Core *et al.* 1999).

⁸ We thank one of the reviewers for identifying this possibility.

⁹ Choe *et al.* (2009) define CEO power along three dimensions, board characteristics, shareholder rights and ownership structure with a range of variables used to capture these characteristics. It is argued that CEO power is positively associated with poor governance and a lack of oversight by board or shareholders.

himself (Bertrand & Mullainathan 2000, 2001; Bebchuk & Fried 2003; Choe *et al.* 2009). For example, this could be achieved through increased equity based incentives, particularly where earnings management is possible (Bergstresser & Philippon 2006). There is evidence of a positive relation between CEO power and total CEO remuneration (Core *et al.* 1999; Choe *et al.* 2009) although the relation between CEO power and equity based remuneration is less clear (Bebchuk & Fried 2003; Hartzell & Starks 2003; Choe *et al.* 2009). Given the nature of the CEO remuneration decision we select specific proxies for CEO power rather than rely on the more general governance indices reported in the literature and there is some support for this approach (Bhagat & Bolton 2008). It is expected that CEO power would be most apparent in large boards (Lipton & Lorsch 1992; Eisenberg *et al.* 1998; Jensen 2001) with high levels of executive directors (Ryan & Wiggins 2001) and where the CEO is also the chair of the board (Core *et al.* 1999; Ryan & Wiggins 2001; Bhagat & Bolton 2008) and so our proxies for CEO power include board size, proportion of non-executive directors on the board and chairman/CEO duality. It is hypothesised that the greater the CEO power, the greater the level of CEO remuneration and this gives rise to the next hypothesis.

Hypothesis 4

- 4a. Board size is positively related with CEO remuneration.
- 4b. Proportion of non-executive directors on the board is negatively related with CEO remuneration.
- 4c. Existence of dual chairman/CEO is positively related with CEO remuneration.

2.1.5 Growth options and task complexity

CEO task complexity tends to increase with company size (Rose & Shepard 1997; Core *et al.* 1999). CEO remuneration should reflect complexity and so it is expected

that there will be a positive relation between the level of CEO remuneration and the size of the company. We also expect a positive relation between the size of the investment opportunity set available to the company and CEO remuneration (Smith & Watts 1992; Baber *et al.* 1996). Further, the greater the level of growth options in the company the more difficult it is to monitor the CEO and the greater the risk that the CEO will not perform as required. It is hypothesized that there is a positive relation between CEO remuneration and growth opportunities and between CEO remuneration and size. The variable used to proxy for growth options is R&D to total assets and so hypothesis 5 is written as follows:

Hypothesis 5

5. R&D to total assets and size are positively related to CEO remuneration.

2.1.6 Monitoring by lenders

Monitoring by lenders, such as banks and financial institutions, may also have an impact on CEO remuneration, with greater levels of debt being associated with the possibility of greater levels of outside monitoring including the monitoring of the CEO remuneration package. Leverage is included in the study as a control variable to capture the impact of lender monitoring. It is expected that greater leverage is associated with lower CEO remuneration. Lenders are expected to monitor highly levered companies more closely and so may be more sensitive to excessive CEO remuneration where company leverage is high.

Hypothesis 6

6. Debt to assets is negatively related to CEO remuneration.

2.2 Company performance

Higher remuneration levels should tend to attract superior CEOs, and so if incentives are correctly set up, current CEO remuneration will be positively correlated

with future performance. The relation between future performance and CEO remuneration is necessarily stochastic and so it is possible that there will be states of the world where a positive relation is not evident. Nevertheless, we expect that a positive relation will hold on average across our sample of firms.

Market based incentives can better align CEO and shareholder expectations as both benefit from company value increases. Thus, in lieu of managerial power, the level of CEO equity based remuneration is, on average, positively related with future firm performance. Cash or bonus based remuneration is not linked to future performance in a direct manner like market based remuneration and so this element of remuneration may be used to reward past performance as well as to retain a valuable CEO. Thus the form of the remuneration, cash or equity, could be important in aligning CEO remuneration with future performance.

The literature provides little analysis of the relation between CEO remuneration and future performance though Core *et al.* use a CEO remuneration model to estimate excess remuneration and find that their excess remuneration measure is negatively related to performance (Core *et al.* 1999). The result is interpreted as supporting the argument that management entrenchment can generate negative future performance.

Hypothesis 7 deals with the relation between future performance and current CEO remuneration and its components where future performance is measured using a short-term accounting measure, return on total assets, and a long-term market based performance measure, market to book value of total assets. The hypothesis relates both to total remuneration and total remuneration relative to the industry average. The latter measure adjusts for broad industry effects in the determination of CEO remuneration. Analysis also focuses on the components of the remuneration package,

to gauge the impact of cash based remuneration relative to equity based remuneration on the performance of the firm.

Hypothesis 7

7a. Market to book value of assets (or ROA) is positively related with CEO remuneration in the previous year.

7b. Market to book value of assets (or ROA) is positively related with the proportion of market based remuneration paid to the CEO in the previous year.

3. Data

We conduct a cross-sectional analysis of CEO remuneration for 1144 companies listed on the Australian stock exchange in 2006. The year 2006 was chosen for analysis because of the change in financial reporting requirements that occurred with the introduction of the Australian equivalent to the International Financial Reporting Standards (A-IFRS) in 2005.¹⁰ It has been argued that there was a considerable improvement in the remuneration disclosure practices after introduction of AIFRS accounting standards though there were still some gaps, particularly for the very small listed companies that form part of this sample.

Our sample of 1144 Australian companies is identified from the Aspect Huntley data base.¹¹ Shareholder information, board characteristics and director remuneration information is manually collected from pdf copies of the annual reports for the companies in the sample. The initial list of companies obtained from Aspect Huntley numbered 1696 but this was reduced where there was: no annual report available (44 companies); no clearly identified CEO (95 companies); no remuneration section in the annual report (59 companies); no remuneration paid to the CEO (39 companies); no remuneration data reported (15); no Aspect Huntley accounting data

¹⁰ Publication of CEO remuneration was rather patchy prior to 2006 with some firms providing comprehensive disclosure, while other firms reported little or no CEO remuneration data.

¹¹ <http://aspectfinancial.com.au/>

for the company in 2006 (108 companies); no data for market value of assets or book value of assets (119 companies) and; missing shareholder or board of directors information (73). This gives 552 exclusions from the original list of 1696, leaving 1144 companies for analysis.

Variables are collected for each of the companies to capture the level and composition of CEO remuneration with total CEO remuneration and CEO remuneration relative to industry average used as measures of CEO remuneration. The natural logarithm of these variables is used in regression analysis due to the non-normal distribution of these variables. This gives rise to the two dependent variables used in analysis, the logarithm of total CEO remuneration (LntotCEOrem) and the logarithm of CEO remuneration relative to industry average (IndreltotCEOrem). Information is also collected on the composition of the CEO remuneration package including the proportion of CEO remuneration devoted to short-term (Stpay), long-term (Ltpay) and post-employment components (Pepay). The short-term elements of CEO remuneration include salaries, fees, commissions, short-term cash or profit sharing payouts, other short-term bonuses, short-term non-monetary benefits and any other benefits of a short-term nature that the CEO receives as part of their remuneration agreement. The long-term elements of CEO remuneration include long-term incentive plans, shares, options and other benefits of a long term nature. The post-employment elements of CEO remuneration include superannuation, pension benefits and other post-employment benefits made available to the CEO.

Governance variables cover both shareholder and board of director characteristics. Shareholder variables include the percentage of equity held by the top 20 shareholders (Top20shrholders), the percentage of equity held by the largest shareholder (Topshrholder) and the percentage of equity held by blockholders, being

those shareholders with more than 5% of the equity in the company (Block-holding). The number of directors on the board (BoardSize), the percentage of non-executive directors on the board (Nonex) and a dummy variable indicating whether the chairman of the board is also the CEO are used to capture the impact of board characteristics on CEO remuneration (Chairman/CEO).

Return on assets and market to book value of total assets are used to measure company performance. The return on assets variables include the average return on assets for 2004 and 2005 (avROA45) as well as return on assets for 2006 and for 2007 (ROA6 and ROA7). Market to book value of total assets is collected for the years 2005, 2006 and 2007 (Mkt/bvasset5, Mkt/bvasset6 and Mkt/bvasset7). These variables are commonly used to capture company performance in the literature and so analysis is conducted separately for the return on assets based performance measures which tend to be short term in nature and the market to book based performance measures which tend to take a longer term focus.

The proxy for growth options, or the investment opportunity set, is research and development costs (Rd/asset6) and this is calculated using the ratio of R&D expenses over the year to total assets at the beginning of the year. Long-term debt to total assets (Ltd/assets6) is used to capture leverage. Finally, the log of the market value of assets, where the market value of assets is defined as the sum of the book value of liabilities and the market value of equity, is used as a proxy for size effects (Lnmktasset6), including the impact of complexity.

CEO remuneration data is described in Table 1 with average total CEO remuneration ranging from \$1.4 million in the consumer staples sector to \$0.4 million in information technology (Panel A of Table 1). The CEOs in the energy sector exhibited the lowest proportion of short term remuneration on average (74.5%) and

highest proportion of long-term remuneration (20.8%) while the Telecommunications services sector provide the highest average short term component (86.9%) and the least long-term component on average (6.5%). Analysis of variance (ANOVA) tests for difference in the mean across the industries shows that there is statistically significant variation across the industries in average total CEO remuneration as well as for short-term and long term components of remuneration. The average post employment component of CEO remuneration is fairly stable across industries with an average of 7.1% for the sample.¹² Descriptive statistics for remuneration by company size quintiles are reported in Panel B of Table 1. Size quintiles are based on the book value of the total assets held by the firm with a value of 1 referring to the largest firm quintile and a value of 5 referring to the smallest firm quintile. While there is a considerable difference in the average CEO remuneration for the largest companies (\$2.2 million) compared with the smallest companies (\$0.2 million) there is also some variation in the proportions allocated to long-term and short-term components of the remuneration package with greater incidence of short-term remuneration in the smaller companies.¹³

[Insert Table1 and Figure 1 about here]

Descriptive statistics are reported for the explanatory variables in Panel A of Table 2, with correlation coefficients for these variables appearing in Panel B of Table 2. While there are some large correlation coefficients, particularly for shareholder

¹² The ANOVA test failed to reject the null of no difference in the mean post employment component of total remuneration.

¹³ ANOVA tests show that mean differences are statistically significant for total remuneration as well as for the short-term and long-term proportions. Again, the ANOVA test for difference in post employment proportion of remuneration across the industries fails to reject the null of no statistically significant difference.

variables, company size, and the book to market value of assets, the remainder of the estimated correlation coefficients are small.

[Insert Table 2 about here]

4. Analysis

We analyse both total CEO remuneration and the proportion of CEO remuneration to the average for its industry using ordinary least squares regression, with robust standard errors. A set of nine industry dummy variables are included in the model to control for the impact of industry effects (Inddummies) on CEO remuneration.

4.1 CEO remuneration

The CEO remuneration model takes the form:

$$\begin{aligned}
 CEOrem = & \left\{ \begin{aligned}
 & \alpha_0 + \alpha_1 Stpay + \alpha_2 Ltpay + \alpha_3 Blockholdings \\
 & + \alpha_4 Topshrhldr + \alpha_5 Top20Shrholders + \alpha_6 Boardsize \\
 & + \alpha_7 Nonex + \alpha_8 Chairman / CEO + \alpha_9 Rd / asset6 \\
 & + \alpha_{10} Perf 2005 + \alpha_{11} Ltd / asset6 \\
 & + \alpha_{12} Lnmtasset6 + \sum_{i=1}^9 \alpha_{13,i} Inddummies_i + \varepsilon_i
 \end{aligned} \right. \quad (1)
 \end{aligned}$$

Where $CEOrem$ = either to $LntotCEOrem$, natural log of total CEO Remuneration, or $IndreltotCEOrem$, the natural log of CEO remuneration relative to industry average using the 10 major GICS industry codes
 $Stpay$ = short-term component of CEO remuneration (%)
 $Ltpay$ = long-term component of CEO remuneration (%)
 $Top20shrhldr$ = percentage of equity held by the top 20 shareholders
 $Topshrhldr$ = percentage of equity held by the largest shareholder
 $Block-holding$ = percentage of shares held by blockholders defined as shareholders holding 5% or more of the equity in the company
 $BoardSize$ = number of directors on the board
 $Nonex$ = the percentage of non-executive directors on the board

Chairman/CEO = a dummy variable indicating whether the chairman of the board is also the CEO

Perf = either *avROA45*, average return on assets for 2004 and 2005, or *Mkt/bvasset5*, the market to book value of total assets calculated for 2005

Rd/asset6 = ratio of R&D expenses over the year to total assets at the beginning of the year

Ltd/assets6 = long-term debt to total assets

Lnmtasset6 = natural log of the market value of assets

Inddummies = a set of dummy variable used to capture industry effects

The results from estimating this model are reported in Table 3 with separate models estimated for the two measures of CEO remuneration and for the two performance measures, return on assets and the ratio of market value to book value of assets. The estimated models are statistically significant with an R square of 0.65 for the total CEO remuneration regression and 0.48 for the CEO remuneration relative to the industry average.

[Insert Table 3 about here]

There is no support for Hypothesis 1 as neither of the performance measure coefficients is statistically significant. Past performance has no statistically significant explanatory power over cross-sectional variation in either total CEO remuneration or CEO remuneration relative to industry average for our sample of Australian listed companies. While this result is consistent with Izan *et al.* (1998) it is not consistent with the more recent time series analysis of Merhebi *et al.* (2006).

The components of the remuneration package are found to be important in explaining cross-sectional variation in total CEO remuneration and CEO remuneration relative to industry average. There is a statistically significant negative relation between the two CEO remuneration measures and the proportion of

remuneration that is short-term (cash) in nature. Further, there is a statistically significant positive relation between total CEO remuneration and the proportion of remuneration that is long-term (market based) in nature. These results are consistent with hypothesis 2, although the lack of a statistically significant relation between market based remuneration (Ltpay) and CEO remuneration relative to the industry average should be noted. Thus, total remuneration paid to a CEO tends to be larger the greater the proportion of equity and the lower the proportion of cash that is included in the package. The negative (positive) relation between the short-term (long-term) component of CEO remuneration and total remuneration could be explained by large complex firms paying their CEOs more in total while favouring equity-based remuneration because of its ability to better align CEO and shareholder interests. An alternative managerial power based explanation is that market based remuneration is chosen to cloak the true cost to the firm of the CEO's remuneration package, particularly in the rising market that occurred from 2004 through to 2006

Only one of the three shareholder characteristics is found to be important in this analysis with percentage of shareholding controlled by the largest shareholder being statistically significant and negatively related with CEO remuneration, consistent with Hypothesis 3c. It seems that the existence of a very large shareholder is sufficient to temper the level of CEO remuneration both in an absolute sense and relative to the industry average. The coefficients for the shareholding of blockholders as a group and for shareholder concentration (shareholding of the top 20 shareholders) are not statistically significant at the 5% level and thus there is no support for hypotheses 3a and 3b. This result casts doubt on the ability of block-holders, as distinct from the largest shareholder, to temper excessive CEO remuneration claims.

The structure of the board of directors could affect CEO remuneration either through CEO capture of the board (Lipton & Lorsch 1992; Jensen 2001) or through the board structure mitigating CEO capture. Consistent with hypothesis 4a, board size is positive and statistically significantly related with CEO remuneration. Greater levels of remuneration earned by CEOs may simply reflect the greater control that CEOs have over the board of directors. Yet, in this sample, a CEO who is also chair of the board tends to earn lower levels of pay on average than a CEO who does not hold both positions. This is inconsistent with hypothesis 4c and the managerial power explanation. Finally, the proportion of non-executive directors on the board is not statistically significantly related with CEO remuneration and so there is no support for hypothesis 4b. In effect, the monitoring aspect of this group of directors does not appear to be important with respect to the CEO remuneration decision. While the positive link between board size and CEO remuneration and the lack of a non-executive director effect on remuneration suggests board capture, it is interesting to note that CEOs who also chair the board earn lower levels of remuneration. The sample used in this study is quite unusual in its coverage of all available listed companies and so it is possible that small companies with small boards that are controlled by a dominant shareholder could be driving this CEO/chair of the board duality effect.

Consistent with hypothesis 5, coefficients for both R&D and size are positive and statistically significant either at the 5% level or at the 10% level of significance. This suggests that growth options and task complexity are important determinants of CEO remuneration. It appears that higher levels of remuneration are paid to CEOs who face a more complex task; where they are responsible for dealing with large complex companies and/or companies with considerable growth options. There is no

support for hypothesis 6 with respect to monitoring by lenders. The coefficients are positive though not statistically significant in Table 3.

4.2 Components of CEO remuneration

CEO remuneration is broken down into three components, short term remuneration (Stpay), long term remuneration (Ltpay) and post employment benefits (Pepay).

Given the lack of variation in post employment benefits evident in Table 1, the cross-sectional analysis focuses on remaining two elements, the short-term and the long-term components of CEO remuneration. Results of the analysis are reported in Table 4. The explanatory variables are similar to those included in Equation (1) above with statistically significant coefficients reported for the largest shareholder and size at the 5% level of significance and for long term debt to assets and for market to book coefficients (Stpay only).

[Insert Table 4 about here]

The market sensitive component of CEO remuneration (Ltpay) is negatively related to the shareholding of the largest shareholder while cash based remuneration (Stpay) is positively related to the shareholding of the largest shareholder. This suggests that large powerful shareholders monitor CEO remuneration and tend to be associated with firms that pay their CEOs relatively more cash based remuneration and relatively less equity based remuneration. It is also found that the larger the company the greater the proportion of market sensitive remuneration and the lower

the proportion of cash based remuneration there is in the CEO's remuneration package, consistent with hypothesis 2a.

These results highlight the problems facing boards of directors in large companies. Large listed companies are rarely controlled by one shareholder. While the board of a large company rarely faces the intense monitoring that occurs where one shareholder holds a very large percentage of the company's shares, large companies also face an internationally competitive market for CEOs. These companies must pay a competitive salary to attract and hold a suitable CEO (Oyer 2004; Rajgopal *et al.* 2006). Yet, there is always the question of whether the CEO is being paid for luck or for skill (Bertrand & Mullainathan 2001; Garvey & Milbourn 2006) and whether the remuneration package deals with poor performance in a responsible manner (Brenner *et al.* 2000). In this sample larger companies show a preference for market based remuneration and this is consistent with optimal contracting theory (Jensen & Meckling 1976).

The coefficients estimated for lender monitoring suggest that lenders have some impact on the structure of CEO remuneration with high levels of debt being associated with lower levels of market sensitive remuneration and greater reliance on cash based remuneration. While there was no evidence of lender monitoring affecting total remuneration, there is evidence of a preference for cash remuneration as leverage increases.

There is also a positive relation between market sensitive remuneration and the long term performance measure, market to book ratio, in the prior year. It seems that strong market to book based performance in 2005 was rewarded with increased levels of market sensitive remuneration in 2006. This result is not robust to

performance measure choice because the coefficient estimated for the short-term performance measure, return on assets, is not statistically significant.

In sum, while there is a strong positive size effect on the proportion of market based CEO remuneration there is no evidence of a growth options effect (R&D) and so there is only partial support for Hypothesis 2c. The other variables provide a more interesting explanation, particularly the importance of the largest shareholder and the level of debt. Both of these variables can proxy for monitoring and they suggest that higher levels of monitoring are associated with lower levels of market sensitive remuneration and higher levels of cash based remuneration.

4.3 Company performance and CEO remuneration

The results from regressing future company performance measures on remuneration, using performance data from 2007, and control variables drawn from 2006 are reported in Table 5. The estimated coefficients differ considerably with performance measure choice.

[Insert Table 5 about here]

When using market to book value of assets there is a negative relation between performance in 2007 and total CEO remuneration in 2006. This result is consistent with entrenchment such that the greater the CEO power the greater the CEOs ability to control the remuneration process while not being held accountable for poor performance. Yet, this result is not supported strongly in the return on asset based analysis where the coefficient is not statistically significant. CEO remuneration relative to the industry average has no explanatory effect regardless of the

performance measure used. These results are inconsistent with hypothesis 7a, which relies on optimal contracting arguments. It would seem that optimal contracting arguments do not capture the essence of the relation that exists between future performance and current CEO remuneration in this data set.

The impact of the market sensitive (Ltpay) and cash based (Stpay) components of CEO remuneration indicate that the results are sensitive to the performance measure chosen. There is a statistically significant positive relation between the market sensitive component of CEO remuneration in 2006 and market to book value of assets at the end of 2007. Thus, the results from the market to book based performance measure are consistent with hypothesis 7b although this hypothesis is not supported when using the short term performance measure, return on assets.

Further, when using the market to book performance measure, it is evident that larger boards in 2006 result in lower market to book ratio in 2007 and that greater levels of R&D in 2006 are associated with greater market to book ratios in 2007. These results are not replicated when the short-term performance measure, return on assets, is used. Indeed, there is a positive block-holding effect, a negative R&D effect and a positive size effect

Market to book and return on assets appear to capture different aspects of company performance, particularly given the nature of these two measures. The return on assets measure used in this analysis focuses on the performance that occurred during the financial year ending in 2007 while market to book value of assets measured as at the end of 2007 likely captures performance from the end of 2007 onwards. Thus, it is not surprising that the coefficients for R&D differ markedly between the two measures of performance as growth options tend to pay off in the

longer-term. Further, the lack of a market sensitive CEO remuneration component effect in the return on assets analysis is also not surprising given that this performance measure only focuses on performance over the next 12 months whereas this remuneration component is expected to have a longer term impact on CEO behaviour.

5. Conclusions

The determination of CEO remuneration is an important responsibility for the board of directors who are charged with the responsibility to hire, fire and remunerate CEOs. Using a sample of 1,144 Australian listed companies for 2006, we find that total CEO remuneration is positively associated with the size of the long-term component of CEO remuneration, company size, board size and the level of a company's growth options and negatively associated with the short-term component of CEO remuneration, the percentage shareholding of the largest shareholder and the existence of a CEO who is also chair of the board.

It is important to note that the shareholding of the largest shareholder, and not the proportion of shares held by blockholders or the proportion of non-executive directors on the board, explains variation in CEO remuneration. The largest shareholder in a company appears to be able to dampen CEO remuneration claims. Perhaps this result is not surprising because the greater the investment, the greater the ability of the shareholder to affect remuneration decisions and the greater the loss that the shareholder suffers when funds are wasted on inappropriate CEO remuneration. This result has policy implications because it highlights the importance of investors whose incentives are closely aligned with the value of the company. The larger the investor's stake in the company the more sensitive the investor is to decisions like CEO remuneration.

Although it is commonly argued that non-executive directors improve corporate governance, we find that the proportion of executive directors on the board has no impact on CEO remuneration levels or CEO remuneration relative to the industry average. This result is important because it casts doubt on the ability of, or the incentive for, non executive directors to reign in excessive CEO remuneration. While the non-executive directors can be captured by the CEO there is also little direct incentive for this group to control CEO remuneration. Given the importance of reputation costs to this group, corporate strategy and avoidance of bankruptcy may rank more highly than the generally immaterial costs arising from the CEO remuneration decision.¹⁴ When the company is doing well it is unlikely that non-executive directors will question CEO remuneration and this contention is supported when directors of large corporations choose to ignore shareholder criticism of CEO remuneration levels.

Further, large shareholders (blockholders) are often cited in the finance literature as an important group in the company governance, yet this group also seems to have little impact on CEO remuneration in our sample. In Australia, blockholders would generally include insurance companies, superannuation, other mutual funds and other financial institutions.

It is also argued that CEO remuneration should drive company performance but the literature is inconsistent on this point. While not measured with much precision (10% level of significance) there is evidence that total compensation is negatively related with longer term measures of performance (market to book). Increased levels of remuneration in 2006 may have actually reduced long-term performance as estimated at the end of 2007. Possible future research could extend

¹⁴ It could be argued that a million dollar payout to a CEO is an immaterial amount for a trillion dollar company.

the period of study while maintaining the focus on all available companies rather than just focusing on the larger companies, which is the case for much of the recent literature.

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Table 1, CEO remuneration

Average CEO total remuneration as well as the proportion of total remuneration accounted for by short-term, long term and post employment elements of the remuneration package are reported in this table for a sample of 1144 Australian companies listed on the Australian Stock Exchange in 2006. The average total remuneration and the average % of total remuneration constituting short term, long term and post employment benefits are reported in Panel A by Industry and in the Panel B by company market value quintile with one being the largest company quintile and 5 being the smallest company quintile. TotCEORem is the average total remuneration received by CEO for the year 2006, Stpay is the percentage of total pay that is short term. This includes short term salaries, fees and commissions, short term profit sharing payments and other bonus payments, short term non-monetary benefits and other short term benefits. Pepay is the percentage of total pay that constituting post employment benefits and these include superannuation and pension benefits and other post employment benefits. Ltpay is the percentage of total pay that is long term in nature. This remuneration class includes long term incentive plans, shares, options and other long term remuneration. Count identifies the number of companies that fall within the classification, industry or size. ANOVA prob. refers to the probability from an ANOVA test for difference in means across the ten industry classifications or across company size quintiles.

Panel A, CEO Remuneration by Industry

Industry	<i>TotCEO-Rem</i>	<i>Stpay</i>	<i>Pepay</i>	<i>Ltpay</i>	No Ltpay	Count
Energy	683887	74.52	4.70	20.78	39.64	111
Materials	532811	77.55	6.99	15.46	49.27	343
Industrials	879210	80.54	6.56	12.91	40.15	137
Consumer_discretionary	827197	83.46	7.43	9.11	42.11	114
Consumer_staples	1434441	77.48	10.10	12.42	24.32	37
Healthcare	551605	77.42	8.87	13.71	37.29	118
Financials	1115315	82.22	7.16	10.61	48.47	163
Information_technology	399049	82.10	7.21	10.68	44.71	85
Telecommunications_services	900558	86.90	6.60	6.50	48.00	25
Utilities	445009	79.75	8.24	12.01	36.36	11
All Companies	729638	79.42	7.10	13.49	43.88	1144
ANOVA prob.	0.00	0.01	0.20	0.00		

Panel B, CEO remuneration by Company Size

Size	<i>TotCEO-Rem</i>	<i>Stpay</i>	<i>Pepay</i>	<i>Ltpay</i>	No Ltpay	Count
1 – largest	2189090	74.05	7.65	18.29	21.40	229
2	586539	79.93	6.68	13.39	38.86	229
3	403618	78.96	6.72	14.32	48.47	229
4	272479	79.92	7.94	12.14	49.78	229
5 – smallest	194127	84.24	6.50	9.26	60.96	228
All Companies	729638	79.42	7.10	13.49	43.88	1144
ANOVA prob.	0.00	0.00	0.50	0.00		

Table 2, Variables used in analysis

Explanatory variables are collected for a sample of 1144 Australian companies listed on the Australian Stock Exchange in 2006. While Panel A provides descriptive statistics for the sample, correlation coefficients are reported in Panel B. *IndreltotCEOrem* is CEO remuneration as a percentage of CEO remuneration for the industry. *LntotCEOrem* is the log of the total remuneration paid to the CEO of the company. *Stpay* is the percentage of total CEO remuneration that consists of short term remuneration. *Ltpay* is the percentage of total CEO remuneration that consists of long term remuneration, including shares and options. *Block-holding* is the percentage of total ordinary shares held by blockholders. *Topshrholder* is the percentage of shares held by the largest shareholder in the company. *Top20shrholders* is the percentage of shares in the company that is held by the largest 20 shareholders. *Boardsize* is the number of directors on the board. *Nonex* is the percentage of non-executive directors on the board. *Chairman/CEO* is a dummy variable that takes a value of one if the CEO is also the chairman and zero otherwise. *Rd/asset6* is the percentage of R&D expenses to total assets for the year 2006 with R&D for the year 2006 and the total assets as at the end of 2005. *Avroa45* is the average ROA for the company for 2004 and 2005 inclusive. *ROA6* and *ROA7* refer to the return on assets earned by the company for the year 2006 and 2007 respectively. *Mkt/bvasset5*, *Mkt/bvasset6* and *Mkt/bvasset7* reflect the ratio of the market value of the assets to the book value of the assets for the years 2005, 2006 and 2007 respectively. *Ltd/assets6* is the percentage of long term debt to total assets as at the end of 2006. *Lnmktasset6* is the natural log of the market value of assets where this is defined as the market value of equity plus the book value of liabilities. The sample consists of 1144 observations.

Panel A, Descriptive statistics

Variable	Average	Median	Standard Deviation	Maximum	Minimum
<i>IndreltotCEOrem</i>	100.000	50.503	158.486	1562.590	0.163
<i>LntotCEOrem</i>	12.800	12.739	1.140	16.650	7.504
<i>Stpay</i>	79.416	87.834	21.300	127.448	0.000
<i>Ltpay</i>	13.485	2.284	20.380	100.000	-39.577
<i>Block-holding</i>	38.428	38.360	22.208	99.720	0.000
<i>Topshrholder</i>	20.635	15.555	15.822	90.540	0.048
<i>Top20shrholders</i>	61.963	63.570	19.943	99.860	0.230
<i>Board_Size</i>	5.115	5.000	1.816	15.000	1.000
<i>Nonex</i>	68.257	71.429	17.930	100.000	0.000
<i>Chairman/CEO</i>	0.143	0.000	0.351	1.000	0.000
<i>Avroa45</i>	-0.109	-0.009	3.936	121.511	-46.198
<i>ROA6</i>	-0.180	-0.006	1.969	56.163	-18.918
<i>ROA7</i>	-0.170	0.003	0.874	16.940	-7.981
<i>Mkt/bvasset5</i>	2.925	1.495	14.764	365.897	0.000
<i>Mkt/bvasset6</i>	2.687	1.742	5.199	143.414	0.023
<i>Mkt/bvasset7</i>	3.358	1.926	6.560	144.552	0.014
<i>Rd/asset6</i>	2.049	0.000	9.726	110.700	0.000
<i>Ltd/assets6</i>	9.892	0.278	23.152	585.481	0.000
<i>Lnmktasset6</i>	18.208	17.838	2.187	26.969	12.138

Panel B: Correlations

	Stpay	Ltpay	Block Hold	Topshr Holdr	Top20 Shldrs	Board Size	Nonex	Chair /CEO	Rd/ asset6	Avroa45	ROA6	ROA7	Mkt/ Asset5	Mkt/ Asset6	Mkt/ Asset7	Ltd/ Asset6
Ltpay	-0.87															
Block-holding	0.05	-0.04														
Topshrholdr	0.10	-0.10	0.76													
Top20Shrhldrs	0.07	-0.05	0.92	0.68												
BoardSize	-0.13	0.10	0.15	0.08	0.10											
Nonex	-0.07	0.06	0.03	0.02	-0.02	0.29										
Chairman/CEO	0.09	-0.06	0.05	0.08	0.05	-0.16	-0.15									
Rd/asset6	0.01	0.00	-0.06	-0.05	-0.04	-0.01	0.00	-0.03								
Avroa45	0.01	-0.01	0.03	0.02	0.04	0.01	-0.01	-0.03	-0.04							
ROA6	0.02	-0.02	0.10	0.07	0.08	0.05	0.02	-0.01	-0.12	0.01						
ROA7	0.02	-0.03	0.14	0.09	0.11	0.13	0.04	-0.06	-0.13	0.04	0.63					
Mkt/asset5	-0.04	0.06	0.01	0.03	0.01	-0.06	-0.08	0.10	0.02	-0.06	-0.03	-0.15				
Mkt/asset6	-0.03	0.04	0.05	0.05	0.06	-0.07	-0.01	0.02	0.11	0.14	0.58	0.36	0.20			
Mkt/asset7	-0.03	0.04	-0.01	0.00	0.01	-0.12	-0.07	0.06	0.08	-0.03	0.25	-0.01	0.22	0.65		
Ltd/assets6	0.02	-0.02	0.11	0.06	0.12	0.13	0.08	-0.04	-0.07	0.00	0.03	0.04	-0.03	0.05	-0.01	
Lnmktasset6	-0.16	0.15	0.18	0.05	0.10	0.64	0.23	-0.15	-0.13	0.02	0.11	0.21	-0.04	-0.05	-0.13	0.25

Table 3, CEO remuneration

Both total and relative CEO remuneration are analysed using OLS regression. LntotCEOrem is the log of the total remuneration paid to the CEO of the company and IndreltotCEOrem is the total CEO remuneration relative to industry average CEO remuneration. Stpay, the percentage of total CEO remuneration that is short term remuneration. Ltpay, the percentage of total CEO remuneration that is long term remuneration. Block-holding is the percentage of total ordinary shares held by blockholders. Topshrhldr is the percentage of shares held by the largest shareholder. Top20shrhldrs is the percentage of shares held by the largest 20 shareholders. Boardsize is the number of directors on the board. Nonex is the percentage of non-executive directors on the board. Chairman/CEO is a dummy variable equal to one if the CEO is the chairman and zero otherwise. Rd/asset6 is the percentage of R&D for the year 2006 relative to total assets as at the end of 2005. Market to book ratio and return on assets prior to 2006 are used to capture past performance with average return on assets for 2004 and 2005 (Avroa45) and Market-to-book at the end of 2005 (Mkt/bvasset5). Ltd/assets6 is the percentage of long term debt to total assets as at the end of 2006. Lnmtkasset6 is the natural log of the market value of assets, being the market value of equity plus the book value of liabilities. Industry dummy variables for 9 of the 10 industry classifications (1 through 9), provided by Aspect Huntley, are included in analysis though results are not reported separately. The sample consists of 1144 companies.

Dependent Variable	LntotCEOrem		LntotCEOrem		IndreltotCEOrem		IndreltotCEOrem	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Stpay	-0.0083*	-3.46	-0.0083*	-3.46	-0.0168*	-2.39	-0.0168*	-2.39
Ltpay	0.0055*	2.31	0.0053*	2.23	-0.0019	-0.27	-0.0020	-0.28
Block-holding	0.0044	1.56	0.0044	1.58	0.0052	1.02	0.0053	1.04
Topshrhldr	-0.0068*	-2.95	-0.0070*	-3.04	-0.0087*	-2.56	-0.0088*	-2.59
Top20Shrhldrs	-0.0023	-0.80	-0.0022	-0.78	0.0004	0.09	0.0004	0.08
BoardSize	0.0535*	3.15	0.0547*	3.22	0.1302*	2.89	0.1307*	2.90
Nonex	-0.0014	-1.11	-0.0013	-1.00	0.0004	0.24	0.0005	0.28
Chairman/CEO	-0.1793*	-2.26	-0.1920*	-2.43	0.0628	0.82	0.0587	0.76
Rd/asset6	0.5405*	2.75	0.5305*	2.70	0.4019 ⁺	1.94	0.4017 ⁺	1.94
Mkt/bvasset5	-0.0030	-1.60	-	-	-0.0013	-0.91	-	-
Avroa45	-	-	-0.0031	-0.49	-	-	0.0027	0.97
Ltd/assets6	0.1222	1.29	0.1265	1.32	0.1053	0.94	0.1075	0.96
Lnmtkasset6	0.3351*	21.58	0.3343*	21.50	0.3902*	12.58	0.3898*	12.56
Constant	7.0236*	20.16	7.0172*	20.07	-5.7692*	-7.96	-5.7689*	-7.95
Industry dummies	yes		yes		yes		yes	
R square	0.65		0.65		0.48		0.48	
F test prob.	99.42*		98.25*		17.68*		17.62*	

Note: * (+) significant at the 5% (10%) level of significance. Robust standard errors are used in calculation of t-statistics.

Table 4, CEO remuneration, market based and cash based components of pay

Market based (Ltpay) and cash based (Stpay) components of pay are analysed using OLS regression. Stpay, the percentage of total CEO remuneration that is short term remuneration and is essentially cash based. Ltpay, the percentage of total CEO remuneration that is long term remuneration and is essentially market based. Block-holding is the percentage of total ordinary shares held by blockholders. Topshrhldr is the percentage of shares held by the largest shareholder. Top20shrhldrs is the percentage of shares held by the largest 20 shareholders. Boardsize is the number of directors on the board. Nonex is the percentage of non-executive directors on the board. Chairman/CEO is a dummy variable equal to one if the CEO is the chairman and zero otherwise. Rd/asset6 is the percentage of R&D for the year 2006 relative to total assets as at the end of 2005. Market to book ratio and return on assets prior to 2006 are used to capture past performance with average return on assets for 2004 and 2005 (Avroa45) and Market-to-book at the end of 2005 (Mkt/bvasset5). Ltd/assets6 is the percentage of long term debt to total assets as at the end of 2006. Lnmktasset6 is the natural log of the market value of assets, being the market value of equity plus the book value of liabilities. Industry dummy variables for 9 of the 10 industry classifications (1 through 9), provided by Aspect Huntley, are included in analysis though results are not reported separately. The sample consists of 1144 companies.

Dependent Variable	Ltpay		Ltpay		Stpay		Stpay	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Block-holding	0.0530	0.68	0.0494	0.63	-0.0646	-0.73	-0.0614	-0.70
Topshrhldr	-0.1749*	-3.18	-0.1689*	-3.07	0.1615*	2.75	0.1562*	2.66
Top20Shrhldrs	0.0175	0.23	0.0190	0.25	0.0303	0.35	0.0289	0.33
BoardSize	0.3612	0.91	0.3248	0.81	-0.5513	-1.26	-0.5187	-1.18
Nonex	0.0368	1.08	0.0319	0.91	-0.0397	-1.12	-0.0353	-0.98
Chairman/CEO	-1.6389	-0.89	-1.3028	-0.70	3.1140	1.62	2.8119	1.44
Rd/asset6	2.0140	0.37	2.1381	0.39	1.4785	0.27	1.3650	0.25
Mkt/bvasset5	0.0998 ⁺	1.67	-	-	-0.0894	-1.49	-	-
Avroa45	-	-	-0.1077	-1.62	-	-	0.0943	0.94
Ltd/assets6	-3.3090 ⁺	-1.89	-3.4842 ⁺	-1.95	3.1531 ⁺	1.69	3.3100 ⁺	1.74
Lnmktasset6	1.5257*	4.12	1.5610*	4.21	-1.5495*	-3.85	-1.5810*	-3.92
Constant	-19.7951*	-2.21	-19.8415*	-2.20	110.8954*	11.43	110.9354*	11.39
Industry dummies	yes		yes		yes		yes	
R square	0.08		0.07		0.07		0.07	
F test prob.	6.45		6.12		5.66		5.46	

Note: * (+) significant at the 5% (10%) level of significance. Robust standard errors are used in calculation of t-statistics.

Table 5, Company performance and CEO total remuneration

Both market to book and return on assets are analysed using OLS regression. Mkt/bvasset7 is the ratio of the market value of total assets to the book value of total assets for 2007. ROA7 is the return on total assets for 2007. Stpay, the percentage of total CEO remuneration that is short term remuneration. Ltpay, the percentage of total CEO remuneration that is long term remuneration. Block-holding is the percentage of total ordinary shares held by blockholders. Topshrholdr is the percentage of shares held by the largest shareholder. Top20shrholders is the percentage of shares held by the largest 20 shareholders. Boardsize is the number of directors on the board. Nonex is the percentage of non-executive directors on the board. Chairman/CEO is a dummy variable equal to one if the CEO is the chairman and zero otherwise. Rd/asset6 is the percentage of R&D for the year 2006 relative to total assets as at the end of 2005. LntotCEOrem is the log of the total remuneration paid to the CEO of the company. Ltd/assets6 is the percentage of long term debt to total assets as at the end of 2006. Lnmktasset6 is the natural log of the market value of assets, being the market value of equity plus the book value of liabilities. Industry dummy variables for 9 of the 10 industry classifications (1 through 9), provided by Aspect Huntley, are included in analysis though results are not reported separately. The sample consists of 1144 companies.

Dependent Variable	Mkt/bvasset		ROA		Mkt/bvasset		ROA	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
LntotCEOrem	-1.0047 ⁺	-1.65	-0.0188	-0.57	-	-	-	-
IndreltotCEOrem	-	-	-	-	-0.0010	-0.01	-0.0189	-1.39
Stpay	-0.0035	-0.30	-0.0005	-0.35	0.0048	0.36	-0.0006	-0.46
Ltpay	0.0285*	2.14	-0.0021	-1.35	0.0232 ⁺	1.90	-0.0022	-1.44
Block-holding	-0.0167	-0.62	0.0063 ⁺	1.66	-0.0211	-0.80	0.0063 ⁺	1.66
Topshrholdr	0.0024	0.12	-0.0003	-0.16	0.0094	0.53	-0.0003	-0.17
Top20Shrholders	0.0257	1.42	-0.0030	-1.13	0.0280	1.49	-0.0029	-1.10
BoardSize	-0.1453 ⁺	-1.68	-0.0047	-0.40	-0.2000*	-2.46	-0.0033	-0.28
Nonex	-0.0099	-1.07	-0.0001	-0.06	-0.0087	-0.91	0.0000	-0.03
Chairman/CEO	0.7254	0.89	-0.1115	-1.54	0.9171	0.99	-0.1069	-1.40
Rd/asset6	4.7564*	3.66	-0.6882*	-2.66	4.2206*	3.34	-0.6907*	-2.69
Ltd/assets6	1.1540	1.12	-0.1255	-0.65	1.0268	0.97	-0.1259	-0.65
Lnmktasset6	0.1821	0.82	0.0728*	2.55	-0.1533	-0.82	0.0739*	2.86
Constant	11.7922*	2.53	-1.1490*	-3.44	4.7338	1.61	-1.3899*	-3.17
Industry dummies	yes		yes		yes		yes	
R square	0.06		0.09		0.05		0.09	
F test prob.	6.39		8.50		6.59		9.08	

Note: * (+) significant at the 5% (10%) level of significance. Robust standard errors are used in calculation of t-statistics.

Figure 1, CEO Average Remuneraton by Size Quintile

