D Research on executive remuneration

This appendix discusses some of the theories and models of executive remuneration referred to in the main chapters of the report, as well as other perspectives. It draws on research from the economics and management science fields and includes some empirical Australian studies into the determination of executive remuneration.

D.1 Why has executive remuneration increased?

Executive remuneration has attracted significant attention from academics in economics, finance, management science and law. Many researchers have attempted to determine the major forces contributing to observed increases in executive remuneration. Essentially, the literature can broadly be divided between those believing that:

- market factors (such as increased company size) have played the most important role in pay outcomes
- corporate governance arrangements (which is the central tenet of the 'managerial power theory') have been more significant.

Although sometimes thought of as representing polar opposites, these perspectives are not necessarily mutually exclusive, and can operate in tandem — that is, both market forces and imperfect corporate governance may have contributed to increases in executive remuneration.

Market factors and executive remuneration

A number of different market-based explanations for the observed trends in executive remuneration have been put forward. For example, recent research by Gabaix and Landier (2008) has proposed that the increase in US chief executive officer (CEO) remuneration between 1980 and 2003 can be attributed to the increase in the market capitalisation of large companies that occurred in the same period.

Gabaix and Landier (2008) build a model in which the remuneration of a CEO is positively related to the size of the company that they manage (measured in terms of

market value), and the size of a reference company in the economy. CEOs possess different levels of managerial talent, and the most talented CEOs are matched with the largest companies, since this maximises the effect of their superior ability. The effect of an increase in the size of all companies in the economy is to increase the willingness of companies to pay for highly talented CEOs. As a result of higher demand, the remuneration of CEOs increases. Gabaix and Landier (2008) find that their model predicts an increase in CEO remuneration very much in line with what has been observed in the United States since the 1980s.

There is an additional reason why a positive relationship between the remuneration of executives and company size might exist. In a recent paper, Gayle and Miller (2008) have argued that much of the increase in executive remuneration (with specific reference to US industries) can be attributed to increases in the granting of remuneration instruments such as shares and options, which are sensitive to company performance.

Gayle and Miller (2008) distinguish between what they term the 'direct' and 'indirect' effects of growth in company size. The 'direct' effect is similar to the focus of Gabaix and Landier (2008), whereby higher remuneration is required to attract and retain more talented executives at larger companies. The 'indirect' effect, however, relates to the fact that, the larger a company, the greater is the intensity of the principal–agent problem between owners and managers. Alignment of interests calls for the use of performance related remuneration, such as shares and options, which exposes executives to risk. Because executives are risk averse, a higher level of expected remuneration is required to offset the uncertainty they are subjected to.

The authors estimate the empirical relevance of their model using data on the aerospace, chemicals and electronics industries in two samples, spanning the 60 years from 1944, with a break of approximately 15 years at 1978. Their results lead them to conclude that the 'indirect' effect of growth in company size accounts for much of the increase in executive remuneration, but with the 'direct' effect also present. On the latter effect, Gayle and Miller (2008) argue that the market for executives has become more differentiated, such that the premium paid to executives in larger companies has increased, which they suggest corroborates the work of Gabiax and Landier (2008) and Murphy and Zabojnik (2004, 2006) (see below).

Another market based explanation for the observed increases in executive remuneration relates to changes in the composition of skills required to undertake the job requirements of executives. Murphy and Zabojnik (2004, 2006) and Frydman (2005) have postulated that general managerial skills, which are transferable across companies and industries, have become relatively more

important for a CEO to possess than company-specific skills over the past few decades.

The model of Murphy and Zabojnik (2006) for example, considers the tradeoff a company faces when hiring a new CEO. If a company hires externally, they may be able to obtain a CEO with strong general managerial skills, but forgo hiring a CEO with company-specific knowledge possessed by internal candidates. As the relative importance of general skills increases however, Murphy and Zabojnik (2006) believe that companies will be more willing to pass over internal candidates with company-specific knowledge, and will also be more willing to pay for CEOs with general managerial skills. Consequently, CEO remuneration is predicted to increase, in addition to the number of externally hired CEOs.

Another explanation for the rise in CEO remuneration has been put forward in a paper by Sung and Swan (2009). They argue (using a sample of US CEOs from S&P1500 companies over the period 1992–2006) that increases in CEO talent and the risks borne by CEOs (the latter being measured by the product of share return volatility and company size) are the main factors explaining the rise in CEO remuneration in the 1990s and early 2000s. In their view, increases in company size have played a much smaller role in increasing executive remuneration compared to these factors.

The managerial power theory

The managerial power theory, like principal–agent theory, recognises that an agency problem exists between the boards and managers of a company, but also argues that an agency problem exists between company boards and shareholders. In the managerial power theory, executives are able to exert significant power and influence over company directors, and are able to use this power to extract 'rents', defined by Bebchuk and Fried as payments that 'managers obtain beyond what they would get in arm's length bargaining with a board that had both the inclination to maximise shareholder value and the necessary time and information to perform that task properly' (Bebchuk and Fried 2004, p. 62).

Under this approach, the greater the power of executives, the greater is their ability to extract rents, and obtain remuneration outcomes more favourable than those that would arise under arm's length bargaining (for example, in the form of higher pay and/or lower sensitivity of pay to performance). The ability of executives to extract rents is, however, constrained by the presence of 'outrage' costs and constraints, which relate to how remuneration arrangements are perceived by outsiders. The greater outrage costs are, the larger are the costs to executives of adopting certain

remuneration arrangements, in terms of embarrassment, reputational harm, and possibly a reduced willingness by shareholders to support incumbents in takeovers and proxy contests (Bebchuk and Fried 2003, p. 75). Thus, the presence of these costs can act as a constraint on remuneration but also means that managers have incentives to obscure and legitimise their extraction of rents — referred to by Bebchuk and Fried as 'camouflaging'.

Bebchuk and Fried (2003, p. 76) contend that, while increases in executive remuneration during the 1990s (in the United States) did not arise from changes in managerial power *per se*, several other factors consistent with the presence of managerial power may have contributed to the observed phenomenon. First, the authors argue that executives used their influence to obtain substantial option-based pay without giving up corresponding amounts of cash remuneration, and that options granted to executives did not tightly link pay to performance, allowing them to receive windfall gains from general increases in share prices. Second, they state that the rise in share prices in the 1990s, which was not confined to well-performing companies, provided a 'convenient justification' for increases in remuneration in many instances. Finally, Bebchuk and Fried (2003, p. 76) note that strong market conditions can weaken outrage constraints, thus reducing the scrutiny to which 'generous' pay packages would otherwise be subject.

Kuhnen and Zwiebel (2008) provide a formalisation of many aspects of the managerial power theory, and argue that their model can provide two possible explanations for the observed rise in executive remuneration (with reference to the United States). First, the authors state that managerial entrenchment may increase in proportion to firm size, the rationale being that the costs of adjusting to a new manager are greater for larger companies than smaller companies, and that losses in reputation arising from the removal of a manager are more severe for large companies.

Second, the authors argue that the scope for managers to receive hidden pay has increased over the last few decades (while noting that this assertion is only anecdotal in nature). In their view, Kuhnen and Zwiebel (2008) regard the widespread acceptance and utilisation of numerous forms of incentive pay as making certain types of hidden pay more acceptable (a process of camouflaging). Subsequently, this may provide managers with more scope to propose remuneration to company boards that, although hidden, are regarded as acceptable (Kuhnen and Zwiebel 2008, pp. 35–6).

However, the theories of Bebchuk and Fried (2003, 2004) have been disputed by many researchers in the field. This extends beyond Bebchuk and Fried's (2003, 2004) rent skimming explanation for the rise in executive remuneration. In a recent

paper, Edmans and Gabaix (2009) discuss many of the features of remuneration arrangements that Bebchuk and Fried (2004) view as inefficient and inconsistent with arm's length bargaining. Edmans and Gabaix (2009) contend that simple optimal contracting models often fail to adequately capture many of the real-life complexities of remuneration arrangements. They suggest that, by considering the more complex, but realistic, aspects of executive employment relationships, many of the features criticised by Bebchuk and Fried (2004) can be reconciled with efficient remuneration practices.

For example, Bebchuk and Fried (2004, p. 123) argue that 'arm's length contracting would be unlikely to produce a correlation between pay and luck' (see Bertrand and Mullainathan (2001) for an empirical study). However, Edmans and Gabaix (2009) note several rationalisations for the existence of payment for 'luck', aside from the possibility of rent extraction. They cite Gopalan, Milbourn and Song (2008), who argue that, due to risk aversion, optimal contracts will reward managers for positive sector performance, but not punish them for 'bad luck'. Alternatively, Noe and Rebello (2008) postulate that strong past company performance, even if not attributable to CEO effort, provides information about the quality of a company and its future potential for generating cash flow. Stronger company prospects accordingly raise the contribution of an executive to the company, and hence, their remuneration. Indeed, Noe and Rebello argue that 'rather than a sign that boards are "asleep at the wheel", a progressive relaxation of board monitoring and a concurrent increase in CEO compensation are the results of rational changes in CEO compensation and board monitoring based on new information' (2008, p. 2).

Another area where Edmans and Gabaix (2009) challenge the reasoning of Bebchuk and Fried (2004) is with regard to termination payments. The latter, in considering severance payments to CEOs that are not mandated by contract at the time of departure, state:

> The gratuitous departure payments received by CEOs thus provide evidence that directors do not deal at arm's length with CEOs, even in those rare cases where they push the CEO out the door. (Bebchuk and Fried 2004, p. 87)

Nevertheless, rationales for severance payments that are not attributable solely to managerial influence over company boards have been advanced by researchers working in this field. For instance, Heen (2008) considers the importance of 'non-compete agreements', which prevent departing executives from disclosing a company's trade secrets and other confidential information. Such agreements limit the future job opportunities of departing executives, hence, a departure payment compensates the executive for forgoing these opportunities. Heen (2008) presents empirical evidence (using US data) suggesting that ex post non-compete agreements

explain discretionary termination pay, and that such agreements are not covers for stealth remuneration, as suggested by Bebchuk and Fried (2003, 2004).

The pay ratchet effect

A recent paper by Schaefer and Hayes (2008) discusses the phenomenon of ratchet effects in executive remuneration. In what they term the 'Lake Wobegon Effect', Schaefer and Hayes (2008) analyse the process in which companies attempt to place the level of their CEO's remuneration at or above the market median, and this leads to increases in overall remuneration levels.

In their model, Schaefer and Hayes assume that some aspect of productivity cannot be directly observed by participants in financial markets. This asymmetric information may relate to the quality of match between the company and CEO, the ability of the CEO or to the company's own individual productivity. Their results suggest that the desire by companies to 'overpay' their CEO to influence market perceptions are strongest when there is uncertainty regarding company productivity, and weakest when there is uncertainty pertaining to a CEO's ability.

In considering the empirical relevance of their model, Schaefer and Hayes (2008) argue that two prominent explanations for recent increases in US CEO remuneration, namely those relating to failures in corporate governance and increases in the demand for CEO talent, would seem to suggest that major cross-country differences in remuneration should not exist in developed countries. Their rationale is that corporate governance practices do not differ substantially across developed countries and that technological changes that increase the demand for CEO talent should affect companies across national boundaries.

Instead, Schaefer and Hayes (2008) suggest that cross country differences in executive remuneration may be driven by differences in national financial markets. One of the notable results of their model is that an increase in short-termism at small companies can, via ratchet effects, lead to higher remuneration at large companies. Hence, if a nation has many small, publicly listed companies that wish to increase their short-run market valuation, this results in remuneration increases in larger companies, and may lead to cross country differences in remuneration if the degree of 'short termism' in financial markets differs across countries. Thus, Schaefer and Hayes argue that if small US companies are more willing to boost their short-term market valuations than comparable companies overseas, this may in part explain why US remuneration levels are higher than those in other developed countries.

Schaefer and Hayes (2008) raise the possibility that, if shareholders are driven by 'short termism', and if their decisions regarding remuneration are delegated to less myopic directors, such arrangements may actually reduce the magnitude by which executive remuneration rises. Consequently, Schaefer and Hayes (2008) believe that current US governance arrangements — criticised by those such as Bebchuk and Fried (2003, 2004) — may in fact be efficient responses to informational problems in financial markets.

D.2 Pay sensitivity and incentives

A number of empirical studies (primarily undertaken in the United States — but Australian studies are considered in section D.4) have analysed the structure of, and incentives provided by, executive remuneration arrangements. One of the seminal works in this field is that of Jensen and Murphy (1990), who, using a sample of US CEOs in the 1970s and 1980s, estimated that CEO wealth changed by approximately $3.25 for every $1000 increase in shareholder wealth (often labelled the 'Jensen-Murphy statistic'). When breaking their sample down in to large and small companies, Jensen and Murphy (1990) found that the estimates were $1.85 and $8.05 respectively. They argued that the pay–performance sensitivities they estimated were low for an occupation in which incentive based remuneration is supposed to play an important role, and hypothesised that 'political' forces, such as disclosure requirements, constrained the type of contracts that executives could enter into, limiting the payoffs to exceptional performance (Jensen and Murphy 1990, p. 262).

Hall and Liebman (1998) measured the responsiveness of US CEO pay to performance over the period 1980 to 1994, arguing that there is a 'strong link between the fortunes of CEOs and the fortunes of companies they manage … CEO wealth often changes by millions of dollars for *typical* (emphasis in original) changes in firm value' (p. 654). They re-estimate the Jensen-Murphy statistic for their sample period, finding that a $1000 increase in company value increases CEO wealth by $25 at the mean and $5.29 at the median. They also construct size adjusted Jensen-Murphy statistics, and obtain a pay–performance sensitivity approximately four times higher than the original $3.25 estimate of Jensen and Murphy (1990). Hall and Liebman (1998) argue that the reason why they find a higher pay–performance sensitivity than Jensen and Murphy (1990) is because the estimates of the latter predate the significant issuance in options to US executives in the 1980s and 1990s, which account for the bulk of estimated pay–performance sensitivities. In updated estimates for the United States, Murphy (1999) also presents results indicating that pay–performance sensitivities for US CEOs have increased over time.

However, as noted by Aggarwal and Samwick (1999), remuneration arrangements based on principal–agent frameworks require the designers of contracts to make a tradeoff between inducing the agent to undertake a certain amount of effort and minimising the amount of risk the agent is required to bear. They find that the sensitivity of executive remuneration to performance decreases as company share returns become more volatile, suggesting that the presence of risk is an important moderator of pay–performance sensitivities. Indeed, their empirical estimates suggest that for companies with the lowest variance of share returns in their sample, CEO wealth increases by $27.60 for every $1000 increase in market value, but for companies with the largest variance in the sample, the corresponding figure is just $1.45. Similarly, for other executives, the corresponding estimates were $6.01 and $0.58 respectively.

Clementi and Cooley (2009) undertake an analysis using the framework of Aggarwal and Samwick (1999), with a data set for US executives spanning the period 1993–2006, covering a total of 31 587 executives employed by 2872 companies. Their results indicate that a $1000 increase in market capitalisation (interacted with the standard deviation of shareholder returns) results in a $36.63 increase in CEO remuneration for the company with the lowest volatility of shareholder returns in the sample (where remuneration is taken to be executive wealth, defined as the sum of salary, bonus, the year-on-year change in the value of shares and option holdings, net gains from the sale of shares and exercise of options, and the value of newly awarded securities). Conversely, the increase in CEO remuneration for the company with the greatest volatility in the sample was just $1.93. When the model is estimated for all executives, Clementi and Cooley (2009) find that a $1000 increase in capitalisation (again, interacted with the standard deviation of shareholder returns) results in a $6.80 increase in remuneration at the company with the lowest volatility, while the corresponding figure for the highest volatility company is $0.44.

Clementi and Cooley (2009) also estimate the dollar change in an executive's wealth associated with a 1 per cent change in shareholder wealth. They find that, for the CEO employed by the company with the lowest volatility in shareholder returns in their sample, a 1 per cent increase in shareholder returns is associated with a rise in remuneration of approximately $369 000, while the corresponding figure for the CEO employed by the company with the greatest volatility is around $140 000. Furthermore, when Clementi and Cooley (2009) regress remuneration on a constant term and shareholder return only, they obtain the result that a 1 per cent increase in return results in a rise in remuneration of about $195 000 — significantly higher than the estimate that Hall and Liebman (1998) found for their sample of CEOs, covering the period 1980–1994.

D.3 Managerial perspectives

A large number of papers have been published on the topic of executive remuneration in the management science literature. The theoretical perspectives underlying papers written in this field typically relate to agency theory and the tournament theory of corporate advancement (which postulates that high executive salaries are the result of 'contests' between workers, whereby the 'prize' to the winner is a higher salary), although the managerial power theory has also become a major theoretical perspective in recent years (Shields 2007).

Some researchers in this field have questioned the efficacy of current executive remuneration arrangements, raising a number of issues such as the effect that high levels of executive remuneration might have on organisational performance and concerns over the fairness and equity of high pay.

Of course, one of the significant objections to current executive remuneration practices — that executive contracts are inefficient and suboptimal — has been put forward by Bebchuk and Fried (2004), as discussed earlier. It is instructive to note, however, that concerns similar to those expounded by Bebchuk and Fried (2003, 2004) have been discussed in managerial literature since the 1990s.

For example, Wilhelm considers the consequences of board capture by the CEO:

> CEOs have acquired and maintained a nearly absolute power over investors and the board of directors … the CEO has the power to create the board's agenda, decide what information the directors will receive, and control all discussions. The chairman/CEO has a major influence over the selection of directors, rendering the nomination committee almost useless. These directors therefore, feel an obligation and loyalty to the CEO … since the CEO plays a major role in choosing the directors who decide his pay, it is not surprising that they are compensated beyond rational or fair levels. (1993, p. 473)

Similarly, Walters, Hardin and Schick write on the independence of remuneration decisions:

> In many instances, the membership of a compensation committee is made up largely of other CEOs. The negotiation element of the fair bargain is in question as bias may have been injected throughout the entire membership of the system … given the relationship between the CEO and board of directors, the negotiation might be less than at 'arm's length'. (1995, p. 232)

Aside from the managerial power critique of the limits of optimal contracting, one of the concerns about executive remuneration that has been raised by management scholars is the effect that high remuneration for this group of employees has on overall organisational performance. For instance, Brown and Samson (2003) argue

that there is increasing evidence that non-executive company employees react negatively as the size of the pay gap between them and executives continues to increase. Results of increasing pay differentials may include: lower job satisfaction, lower cooperation, lower product quality, lower willingness by employees to accept managerial decisions, and higher employee turnover, all of which may negatively affect company performance (Brown and Samson 2003, p. 321). Similar sentiments are expressed by Shields, O'Donnell and O'Brien:

> … if senior management truly want employee commitment and involvement, then the trend to wider pay inequality between senior management and ordinary employees will have to be reversed … distributive justice is not just a matter of 'fairness' — it may also be an important determinant of organisational performance. (2003, p. 14)

Objections have been also been raised to increases in executive remuneration that have occurred while the pay of 'average workers' within the company has not risen as fast, has been stagnant, or in some cases, has declined. This theme is canvassed by Shields, who argues:

> … while [Business Council of Australia] members have consistently decried Australia's 'uncompetitive' wage cost structure, they have simultaneously been beneficiaries of an unprecedented explosion in the income and equity wealth of Chief Executive Officers. (2005, p. 299)

A proposition on which there are sharply contrasting views concerns the merit of comparing absolute or relative levels of executive remuneration with the pay of lower level workers. For example, Chan (2008) argues that companies within the same industry and of a similar size should develop a ratio of CEO pay to average worker pay that could be 'justified' on the basis of factors such as education, experience, risk assumed, and 'community contribution' (pp. 144–5). This view implies that there is some level of pay relativity beyond which divergences become unacceptable. However, others, such as Nichols and Subramaniam (2001) point out that some difference in remuneration within an organisation is likely to be justified on the basis of differing job complexity and higher ability requirements at more senior managerial levels of the organisation, and that such differences are typically not considered to be unjustified. They believe that the appropriate magnitude of the differences in remuneration caused by these factors is not apparent, and could be difficult to judge (Nichols and Subramaniam 2001, p. 342). Harris (2009) further argues that it is difficult to articulate why a certain ratio of executive to worker pay is objectionable.

Harris (2009) also believes that, since corporate advancement follows a tournament-style contest, the reference pool of workers used to calculate pay ratio comparisons, if they are to be calculated at all, should be restricted to those that have similar, or better, educational and other qualifications than current executives.

A number of proposals to reform executive remuneration have been put forward by scholars in this field. Bebchuk and Fried (2004) propose a number of reforms to corporate governance arrangements (specifically related to US governance) and policies that would enhance the power of shareholders. Chan (2008), who subscribes to the managerial power theory, proposes lifting marginal tax rates faced by executives, in addition to eliminating exit pay, or at least restricting it to managers judged to have performed to a high standard.

Alternatively, Walters, Hardin and Schick suggest that:

> The ideals of true free-market economics should not be understated. On the one hand, excessive government intervention is not considered desirable; nor should high CEO salaries be considered 'unfair', assuming they are in line with firm performance that is based on shareholders' interests. Indeed, the 'politics of envy' strikes many chords, yet often reflects little rationalisation. (1995, pp. 233–4)

They suggest remuneration committees employ their own remuneration consultants, who should not be permitted to have any linkage with the company's management. The consultant should also be required to attend all executive sessions, offer opinions on new and revised remuneration packages, and periodically review the CEO's remuneration package (Walters, Hardin and Schick 1995, p. 233). These authors also recommend that regulatory bodies mandate charges to earnings for all forms of remuneration (including options) and establish a set of guidelines that all companies be required to follow to inform shareholders in a concise and accurate manner how much executives earn.

Writing with specific reference to Australia, Shields, O'Donnell and O'Brien put forward a range of reform proposals, such as making superannuation funds more accountable for decisions on executive remuneration, introducing 'arm's length' remuneration committees, and enshrining board independence in the *Corporations Act 2001* (Cwlth), in addition to requiring formal shareholder approval for all executive remuneration decisions (2003, pp. 46–50).

D.4 Australian studies

Over the years, a number of studies have examined the determinants of CEO and executive remuneration in Australia, and whether remuneration responds to performance. Thus, many of the Australian studies in this field have tended to be primarily empirical in their nature (using the technique of regression analysis) — some of the studies and their main results are considered below.

A comparatively early study of the determinants of executive remuneration and its relationship to performance in Australia was undertaken by Izan, Sidhu and Taylor

(1998), using data for 99 listed Australian companies covering 12 broad industry groups from 1987 to 1992. Although Izan, Sidhu and Taylor (1998) are unable to find evidence of a significant positive relationship between CEO pay (measured by cash remuneration in the form of salary and bonuses) and several measures of performance, they conclude that their results do not necessarily reflect the existence of inefficient remuneration practices. They note that implicit arrangements such as mutual monitoring, external mechanisms such as the market for corporate control, and the role of institutional investors require consideration in assessing the efficiency of remuneration contracts. Furthermore, the authors note that their analysis has ignored the use of deferred compensation practices, noting that, if current company performance is a noisy indicator of contemporaneous CEO performance, long time lags may exist in the relationship between observed performance and remuneration (Izan, Sidhu and Taylor 1998, p. 45).

O'Neill and Iob (1999) analyse Australian executive remuneration using data from 1997 for 49 companies. Many of the companies included in their database had been ranked within the top 150 companies based on the Australian Securities Exchange Accumulation Index (which measures share prices and company income on the assumption that dividends are reinvested), and represented large companies (O'Neill and Iob 1999, p. 67). The study included remuneration data on 42 CEO and 930 senior executive positions.

The authors find that CEO remuneration (measured using base pay, aggregate reward, short-term incentives and long-term incentives) is positively related to job size, but that other factors, such as age and years in the company, were less important as determinants of CEO remuneration.

O'Neill and Iob (1999) split their analysis of senior executive remuneration, considering executives in large-sized and medium-sized roles separately. The authors find that base salary for senior executives in large-sized roles is negatively related to gender (such that female executives earn lower levels of base pay than their male counterparts) and is also negatively related to the years an executive has served in the company. When considering the determinants of other forms of senior executive remuneration (aggregate reward, short-term incentives and long-term incentives) O'Neill and Iob (1999) obtain the result that remuneration is positively related to job size. Company performance was also found to be a significant determinant of long-term incentive pay for senior executives in large-sized roles.

For executives in medium-sized roles, O'Neill and Iob (1999) found that base salary was negatively related to gender, the number of years an executive had served in the company, the number of years an executive had been in their position, and, counter-intuitively, to company performance. Base salary was however, found to be

positively related to job size. With respect to aggregate reward, remuneration was once again, counter-intuitively, found to be negatively related to company performance, but was positively related to job size and age. Short-term incentives were found to be positively related to job size, but negatively related to company performance. Long-term incentives were positively related to job size and gender, but were negatively related to company performance.

On the basis of their results, O'Neill and Iob (1999) conclude that Australian companies remunerate executives primarily on the basis of job complexity, given that the consistently statistically significant independent variable across their regressions was the measure of job size they had constructed.

In another study in this field, Fleming and Stellios (2002) sought to determine the factors affecting CEO remuneration in Australia, undertaking an analysis using a sample of 86 of the 500 top companies listed on the Australian Securities Exchange in 1999. CEO remuneration was measured as the sum of base salary, non-cash entitlements, cash bonus, stock options granted and employer superannuation contributions.

In the first stage of their analysis, Fleming and Stellios (2002) consider several variables that may be related to the demand for a CEO's labour. They hypothesise that company size, performance, growth opportunities, company risk, CEO age and CEO tenure are all positively related to remuneration (Fleming and Stellios 2002, p. 132). When estimating their model however, Fleming and Stellios find that only company size (proxied by total assets) and company risk are positively related to remuneration. Furthermore, it was found that CEOs in the finance sector earned lower remuneration than their counterparts in manufacturing.

Based on their regression analysis, the authors argue that labour demand factors account for approximately 50 per cent of the variation in CEO remuneration, and define 'excess' remuneration as that which cannot be explained by a CEO's contribution to production or company characteristics. 'Excess' remuneration reflects the ability of CEOs to extract remuneration from companies arising due to agency problems, and hence, argue Fleming and Stellios (2002) is related to (comparatively poor) corporate governance characteristics. Accordingly, the authors hypothesise that the level of 'excess' remuneration will be related to the following:

- the size of the company board (measured by total number of directors)
- the proportion of the board comprised of non-executive directors
- the average experience of non-executive directors on the company board
- the proportion of non-executive directors classified as 'busy'

- the existence of a remuneration committee that is independent of the CEO
- the proportion of company shares held by the CEO or immediate family members.

Fleming and Stellios (2002) find that the proportion of non-executive directors serving on the company board and the proportion of company shares held by the CEO or immediate family members are both negatively related to the level of 'excess' remuneration. However, in a model with a slightly different specification, the authors find that only the proportion of non-executive directors on the company board is (significantly) negatively related to the level of 'excess' CEO remuneration.

Accordingly, the authors argue that the level of 'excess' remuneration is negatively related to the proportion of non-executive directors on a company board and ordinary share ownership of the CEO and immediate family. They propose that greater board monitoring and alignment of CEO and company interests can reduce the agency costs of 'excess' remuneration (Fleming and Stellios 2002, pp. 142–3).

Merhebi et al. (2006) analyse CEO remuneration in Australia using a sample of 722 companies over the period 1990–99, measuring CEO remuneration that includes salary and bonuses, but excludes options. They find that there is a significant positive relationship between company size and CEO cash remuneration, and that the magnitude of the relationship they estimate is similar to the results of international studies. Merhebi et al. (2006) also assess how sensitive CEO remuneration is to performance, hypothesising that changes in remuneration from one time period to the next are significantly positively associated with changes in shareholder wealth in the current and previous period (p. 486). The authors find support for this hypothesis, and estimate that a CEO receives a 1.16 per cent increase in cash remuneration for a 10 per cent increase in shareholder wealth. They note, however, that the relationships they report may underestimate the true magnitude of the sensitivity of pay to performance since equity-based forms of remuneration are excluded from their analysis (p. 493).

Based on their results, Merhebi et al. (2006) conclude that, not only is there a significant relationship between company size and remuneration, but that 'remuneration is positively related to firm performance in a magnitude comparable to that of other developed countries …' (p. 495). The authors note that their results provide some support for the view that remuneration is a remedy to the agency problem. However, the authors note that, given the lack of economic significance of the pay–performance relationship they estimate, their results are also not inconsistent with the theory that remuneration is part of the agency problem. This interpretation is subject to the caveat however, that the authors have not considered

remuneration received in the form of stock holdings and options (Merhebi et al. 2006, pp. 495–6).

Doucouliagos, Haman and Askary (2007) considered the empirical relationship between directors' and CEO pay and performance within the Australian banking industry. The research used information on the 10 banks listed on the Australian Securities Exchange over the period from 1992 to 2005. Four different measures of remuneration are used:

- total directors' remuneration (including CEO remuneration)
- total CEO remuneration
- CEO base remuneration
- CEO bonus and short-term incentive remuneration.

Total directors' remuneration includes salaries and fixed fees, bonuses and incentive based remuneration, in addition to retirement benefits and employer contributions to superannuation. Total CEO remuneration also includes the value of shares and options granted (Doucouliagos, Haman and Askary 2007, p. 1367).

The authors estimate a series of relationships for directors' remuneration and CEO remuneration which they refer to as a base model. These models consider the relationship between total remuneration and several other variables including: company size, shareholder returns, return on assets, return on shareholder equity and earnings per share. The authors conclude that the key determinants of directors' remuneration are bank size and bank-specific effects. With regard to performance measures, only earnings per share (lagged two periods) was a (statistically) significant determinant of remuneration (and generally of the expected sign) in the majority of their models.

Doucouliagos, Haman and Askary (2007) estimated a further series of models using additional variables, such as (but not limited to) board size, board composition (measured as the proportion of non-executive directors on the company board), number of committees and turnover of directors. The authors find that the key determinants of total directors' remuneration in Australian banking are: bank (company) size, age of directors, directors' share ownership, lagged remuneration and lagged performance, measured either by lagged return on assets or lagged return on shareholder equity (p. 1373).

For CEOs, Doucouliagos, Haman and Askary (2007) find that return on shareholder equity and earnings per share are significant determinants of CEO remuneration, in addition to bank (company) size. The authors thus conclude that their results provide evidence of a strong pay–performance relationship in Australian banking at

the CEO level. In terms of directors' remuneration, they conclude that although there does not appear to be a significant relationship between directors' remuneration and performance over a time horizon of one year, there is evidence of a longer relationship of two years, on average, for Australian banks.

Another recent study of executive remuneration in Australia was undertaken by Capezio (2008), who conducts an analysis of CEO remuneration and performance over the period 1998-99 to 2005-06. All Australian public companies that were part of the All Ordinaries index during this time are included in the sample, which includes 663 distinct companies and 1257 CEOs (Capezio 2008, p. 80). CEO remuneration is measured by cash reward, including:

- total cash reward: includes salary, the dollar value of non-cash benefits, allowances, post-employment fees (including consulting fees), superannuation, and short-term cash incentives
- annual incentive cash reward: includes the level of annual reported performance-based cash reward
- total non-incentive cash reward: includes all cash reward components specified above with the exception of the performance-based cash component. (Capezio 2008, p. 83).

The analysis excludes the value of equity-based CEO remuneration and company share holdings, which, as noted by Capezio (2008), limits the extent to which causal inferences about total CEO remuneration can be drawn from the estimated results (p. 83).

Capezio (2008) tests a number of propositions on the determinants of CEO remuneration, using a number of modelling frameworks (see pp. 64–76 for a list of these propositions). On the basis of the results, Capezio states that there is little evidence that CEO total and annual cash remuneration are positively associated with measures of performance — be they accounting or market return measures of performance. Consequently, Capezio (2008) suggests that it might not be the case that corporate performance is used to determine the level of CEO cash remuneration in Australia.

However, Capezio (2008) does find that company size is positively related to CEO total cash, and annual incentive cash, remuneration. Furthermore, evidence is also found of a positive relationship between company risk and CEO total cash remuneration.

On corporate governance, Capezio's (2008) results do not support the propositions that board independence is negatively associated with CEO total cash remuneration,

or annual cash remuneration, nor do the results support the view that the presence of a non-executive dominated remuneration or nomination committee is negatively associated with CEO total, or annual incentive, cash remuneration. Capezio (2008) interprets these results to mean that non-executive dominated boards, committees and chairs are not necessarily more effective in managing the relationship between CEO cash remuneration and performance than boards that do not subscribe to such principles of independence and best practice corporate governance. Thus, Capezio (2008) argues that independent boards are not necessarily less prone to making unreliable decisions on CEO performance appraisal and remuneration (p. 217).