Towards a Set of Design Principles for Executive Compensation Contracts

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ABSTRACT

Executive compensation has been controversial for several decades. Recent controversies over executive pay have sparked outrage from some sectors and calls for increased regulation and reform. Yet others argue that knee-jerk reactions to perceived abuses of pay can lead to a host of unintended and inefficient outcomes. This paper argues that much of this controversy is due to executives being rewarded via contracts that have weaknesses in design. We argue that few stakeholders in firms would object to generous compensation for managers whose performance results in abnormally high long-term shareholder wealth creation. We set out a set of design principles, developed from a review of the extensive theoretical, regulatory and empirical literature, that we suggest should be the fundamental building blocks for designing executive remuneration systems in public firms, especially where ownership and control is separated. Our purpose is to generate broad debate and discussion leading to a consensus as to the principles that should be present in all executive compensation contracts such that the interests of shareholders and managers are aligned.
1. INTRODUCTION

CEO compensation is controversial. While some examples of CEO misbehavior are quite recent and thus well-remembered (for example the Enron and WorldCom collapse, the US option backdating scandal of the mid-2000s, high-risk lending in the US residential real estate market and compensation systems that encouraged excessive risk-taking in financial institutions which led, among many other factors, to the global financial crisis, termination payments that were perceived to be overly generous) Murphy (2013) demonstrates that CEO pay was controversial in the US even before the Great Depression of the 1930s.

CEOs of public companies are routinely perceived to be overpaid and their boards are perceived to provide poor monitoring and control of powerful executives. There are three elements to these complaints (Kaplan, 2012), namely that (i) CEOs are overpaid and their pay keeps increasing; (ii) CEO pay is not linked to performance; and (iii) corporate boards are ineffective monitors. Bebchuk and Fried (2005, p. 2) claim that, “flawed compensation arrangements have not been limited to a small number of “bad apples”; they have been widespread, persistent, and systemic.”

The US regulatory response to the Enron and WorldCom collapses (among many other high profile failures) was to introduce far-reaching corporate governance reforms in the Sarbanes-Oxley legislation of 2002, while the Dodd-Frank legislation of 2010 followed the global financial crisis. Dodd-Frank requires, among many other things, all public companies obtain an annual advisory shareholder vote on top executive pay. Australia’s response to perceived abuses of termination payment resulted in amendments to the Corporations Act 2001 that restrict giving benefits greater than one year’s base salary on retirement from a board or managerial office, unless shareholders approve the benefit. Australian remuneration rules were also recently, and many argue controversially, amended to introduce the “two strikes” rule which became effective from 1 July 2011. Under the two strikes rule, if 25 per cent of shareholders at a company’s annual general meeting vote against the company’s remuneration report the first time, directors are put on notice to review their remuneration policies. The second and final strike is delivered if at the following year’s AGM 25 per cent of shareholders again vote against the remuneration report. If at least 50 per cent of shareholders present at the meeting vote

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1 We acknowledge the helpful suggestions of Talis Putnins and Doug Foster.
2 Kaplan (2012) shows that top executive pay policies at over 98% of S&P 500 and Russell 3000 companies received majority shareholder support in the Dodd-Frank mandated “Say-On-Pay” votes in 2011.
3 The Corporations Amendment (Improving Accountability on Director and Executive Remuneration) Act 201 (Cth).
for a board spill, directors must face re-election within 90 days. However, whether these regulatory reforms will achieve their intentions without severe unintended consequences remains somewhat clouded. A central theme of Murphy (2013) is that the history of regulatory intervention into CEO pay in the US suggests that unintended consequences abound.

This paper argues that much of this controversy is due to executives being rewarded via contracts that have weaknesses in design. We argue that few stakeholders in firms would object to generous compensation for managers whose performance results in abnormally high long-term shareholder wealth creation. We set out a set of design principles, developed from a review of the extensive theoretical, regulatory and empirical literature, that we suggest should be the fundamental building blocks for designing executive remuneration systems in public firms, especially where ownership and control is separated. Our purpose is to generate broad debate and discussion hopefully leading to a consensus as to the principles that should be present in all executive compensation contracts such that the interests of shareholders and managers are aligned.

2. THEORIES OF EXECUTIVE COMPENSATION

There are two main “camps” in relation to CEO compensation, and it is quite clear that opinions are dramatically and sometimes heatedly divided. One group of researchers argues and finds that CEO compensation is set in a competitive equilibrium with appropriate incentive structures to motivate managers to maximize shareholder wealth. In political terms this camp is akin to the US Republicans or the Australian Liberal Coalition. The other dominant group argues that CEO compensation is set through managerial power over ineffective boards of directors. This represents the left side of politics, i.e., the US Democrats or the Australian Labor Party. As in the political arena the two groups engage in robust debate, though occasionally some of the debate becomes somewhat inflamed.

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4 Adrian Lee and Yaowen Shan have a current research project on the two strikes rule in Australia. They find that, among all ASX listed firms, there are 99 first strikes in 2011, and 124 strikes in 2012. Twenty-three of these firms have two strikes in 2012. Their preliminary results also show that the market reaction following the AGM meeting for a “first strike” in 2011 is negative and significant.

5 Bertrand (2009) reviews three main explanations; a principle-agent view, a rent extraction view and a market-based view. The market-based view argues that the market has played an increasingly important role in setting CEO compensation because a growing share of CEOs are externally recruited as the demand for CEOs shifts away from firm-specific skills toward more general skills. This shift has intensified the competition among firms for managerial talent, resulting in higher equilibrium compensation in the CEO market (see section 3.2.3 in Bertrand 2009). The market-based view can be considered to be a part of the efficient contracting perspective.
Murphy (2013) suggests that any discussion of CEO compensation that ignores developments in government regulatory and tax policy in relation to the CEO pay controversy is likely to ignore an important aspect of the way in which executive pay, particularly in the US, has evolved. Thus a third aspect of executive compensation considers regulatory issues, and in particular some of the unintended consequences of regulatory reform of CEO remuneration. Finally, CEOs are subject to the laws of the land, and these laws spell out the legal obligations of executives of corporations. It is interesting to note that both Australian and US corporations law\(^6\) requires that directors and officers put the interests of the corporation before their own interests.

### 2.1 Efficient Contracting Theories

The efficient-contracting camp, with its theoretical roots in optimal contracting theory, maintains that the “observed level and composition of compensation reflects a competitive equilibrium in the market for managerial talent, and that incentives are structured to optimize firm value” (Murphy, 2013, p. 2). One often-discussed benefit of equity-based compensation is that this can reduce agency costs associated with the separation of ownership and control (see Berle and Means, 1932 and Jensen and Meckling, 1996) by better aligning the incentives of the CEO with those of the shareholders. Smith and Watts (1982) describe long-term incentive plans as a means whereby agency costs can be controlled, in particular costs associated with a manager’s risk aversion. Managers have a considerable portion of their wealth tied up in the firm they manage and hence they hold a portfolio with considerable exposure to firm-specific (idiosyncratic) risk. This causes them to be risk averse in their investment and financing decisions for the firm they manage. Shareholders, on the other hand, can easily diversify away from such firm-specific risks and hence want to encourage managerial risk taking. One way in which this conflict can be reduced is to tie management compensation to firm performance, thus motivating managers to make shareholder value-increasing decisions and improving the pay-performance sensitivity (see also Holmstrom, 1979, Harris and Raviv, 1979, Grossman and Hart, 1983 and Smith and Stulz, 1985).

Hirshleifer and Suh (1992) argue that option-based managerial compensation can reduce agency costs associated with both risk aversion and incentives to reduce effort. Consequently, shareholders would prefer the composition of executive compensation to contain more equity-linked payments than

\(^6\) The US business judgment rule specifies that the court will not review the business decisions of directors who performed their duties (1) in good faith (2) with the care that an ordinarily prudent person in a like position would exercise under similar circumstances; and (3) in a manner the directors reasonably believe to be in the best interests of the corporation. The Australian Corporations Act 2001 (s 180) contains similar provisions.
cash payments. However, it needs to be remembered that the value a CEO places on a share of restricted stock or the grant of an executive option “will be strictly less than the fair market value of the share” (Murphy, 2013, p. 19).

Shleifer and Vishny (1997) argue that in the case of incomplete contracting where managers have more information than outsiders (i.e., analysts and shareholders) managers have residual control rights that provide incentives for self-interested behavior. Long-term equity based compensation offers one solution to this problem, accordingly firm performance is positively affected when managers are granted equity-based compensation.

2.2 Managerial Power Theories

The managerial power camp argues that both the level and composition of CEO pay is determined through managers exercising their power over captive boards. A series of papers by Yermack (1995, 1997, 2006a, 2006b, 2009), Bebchuk and Fried (2003, 2004a, 2004b), Bebchuk et al. (2002, 2010) and Bebchuk and Grinstein (2005) exemplify this view. Yermack (1995) finds that few agency and financial contracting theories have explanatory power for patterns of CEO stock option awards, while Yermack (2006a) focuses on CEO personal use of corporate jets, finding that firms that disclose this managerial benefit underperform by more than 4 per cent annually. An initial disclosure announcement share price effect of -1.1 per cent is documented. Yermack (2006b) studies the severance pay of 179 CEOs who left Fortune 500 firms, showing that more than half receive severance pay worth on average $US 5.4 million. A large majority of this severance pay is made on a discrentional basis by the board of directors, not in accord with the CEO’s employment contract. Yermack (2009) samples 1,013 major gifts by CEOs to their family foundations between 2003 and 2005 and finds that CEOs make their gifts just before their stock price falls, maximizing their income tax refunds.

Bebchuk et al. (2002) and Bebchuk and Fried (2003) argue that managerial power and rent extraction are likely to have an importance influence on the design of executive compensation contracts, while Bebchuk and Fried (2004a) argue a similar case of managerial capture. Their 2004 book provides a “detailed account of how corporate boards have failed to negotiate with executives and how pay practices have decoupled compensation from performance, leading to practices that dilute manager incentives and hurt shareholders” (Bebchuk and Fried, 2004a, p. 2). They argue that making board decision-making at arm’s length from the power of CEOs is tortuous and that substantial additional corporate governance reform is necessary to give shareholders greater scrutiny over boards, and boards
greater control over CEOs. Bebchuk and Fried (2004b) show that US boards have been able to camouflage substantial amounts of executive remuneration through the use of payments made on retirement of executives.

Bebchuk et al. (2010) study the timing of CEO option grants, a topic that has been subject to considerable recent SEC legal action, resulting in dozens of CEOs and directors being forced to resign in the US. The 2010 study finds: “Overall, our analysis provides support for the view that opportunistic timing practices reflect governance breakdowns and raise governance concerns. In particular, we find that: opportunistic timing was correlated with factors associated with greater CEO influence on corporate decision-making, such as a lack of a majority of independent directors or a long-serving CEO; grants to independent directors were also opportunistically timed, and this timing was not merely a byproduct of simultaneous awards to executives or of firms routinely timing all option grants; and lucky grants to independent directors were associated with more CEO luck and CEO compensation. (p. 2364). Bebchuk and Grinstein (2005) examine the growth of US executive pay during the period 1993–2003. They show that pay increased by substantially more that can be explained by changes in firm size, performance, and industry classification. Mean compensation in 2003 would have been only about half of its actual size had the relationships that existed in 1993 been maintained. Equity-based compensation increased considerably for both new-economy and old-economy firms; this growth was not accompanied by a reduction in non-equity rewards.

2.3 Unintended Regulatory Consequences

Murphy (2013) comprehensively reviews the evolution of executive pay in the US with a particular emphasis on the role of government intervention. He argues that the “efficient contracting” and “managerial power” camps are not mutually exclusive. As an example, he argues that a series of papers (Murphy, 2002, Murphy 2003 and Hall and Murphy, 2003) show that the escalation of option grants in the 1990s was because boards and executives (erroneously) regarded option grants as being free. Murphy (2013) argues that treating the two theories (efficient contracting and managerial power) of managerial compensation as competing hypotheses has not been productive, because they ignore critical political, tax, accounting and other influences on managerial pay. In Section 3 of this paper, Murphy develops the central theme of his study, namely that government intervention has been “both a response to and a major driver of time trends in executive compensation over the past century, and that any explanation for pay that ignores political factors is critically incomplete” Murphy (2013, p.42). This
review spans the controversy over executive compensation and the regulatory responses from the 30 years before the Great Depression, during the Great Depression of the 1930s, during the rise (and fall) of the use of restricted stock options between 1950-1969, during the wage and price controls that existed in the economic stagnation of the US from 1970-1982, the development of the market for corporate control in the period 1983-1992, the stock option explosion of 1992-2001, the accounting and backdating scandals of 2001-2007, pay restrictions imposed during Treasury’s troubled asset relief program (TARP) recipients during 2008-2009 and the Dodd-Frank Executive Compensation Reform Act from 2010-2011. Murphy (2013) provides several instances of (i) knee-jerk regulatory intervention to isolated perceived abuses in pay having adverse unintended consequences and (ii) reactions to situations where CEOs are perceived to be getting richer while lower-level workers suffer, giving rise to increased disclosure rules, limits on CEO pay tax deductibility and the wide-ranging pay regulations of the 2010 Dodd-Frank Act. Murphy notes (p. 43) that “the demands to reform (or punish) CEO pay are concentrated in “third parties” angry with perceived levels of excessive pay, and not shareholders concerned about insufficient links between pay and performance”. Murphy (2011, abstract) summarizes the legal history of CEO pay regulation in the US as follows “Over the past 80 years, Congress has imposed tax policies, accounting rules, disclosure requirements, direct legislation, and myriad other rules to regulate executive pay. With few exceptions, the regulations have generally been either ineffective or counterproductive, typically increasing (rather than reducing) CEO pay and leading to a host of unintended consequences, including the explosion in perquisites in the 1970s, golden parachute plans in the 1980s, stock options in the 1990s, and restricted stock in the 2000s”.

2.4 Legal Perspective

Australian regulations in relation to employment of executives in the private sector are contained primarily in the Fair Work Act 2009 and the Corporations Act 2001, though statutes in relation to discrimination, privacy and misleading and deceptive conduct are also of relevance. These legal issues are canvassed in a publication by Clayton Utz (2012). The Corporations Act 2001 (Cth) requires that a company director or other officer exercise their powers and discharge their duties with care and diligence [s 180]. This duty is subject to a business judgment rule that requires a director making a business judgment to:

- make the judgment in good faith and for a proper purpose;
- not to have a material personal interest in the subject matter of the judgment;
inform themselves about the subject matter of the judgment to the extent they reasonably believe to be appropriate;

- rationally believe that the judgment is in the best interests of the corporation.

In addition, directors and other officers of companies must exercise their powers and discharge their duties in good faith in the best interests of the corporation and for a proper purpose [s 181]. They are prohibited from improperly using their position to gain an advantage for themselves or someone else or to cause detriment to the corporation [s 182] and are prohibited from using information obtained as a consequence of their role with the company to gain an advantage for themselves or someone else or to cause detriment to the corporation [s 183]. These last two provisions also apply to employees of the company.

The Corporations Act 2001 also (recently) restricts giving benefits greater than one year’s base salary on retirement from a board or managerial office, unless shareholders approve the benefit. These restrictions cover anyone who has been a director of a company at any time during the three previous years and, for listed companies, key members of management and / or the five highest paid executives over the prior 12-month period. ASX Listing Rules in relation to termination payments also apply to companies listed on the exchange. Specifically a listed company is obliged to ensure that no officer will be entitled to a termination benefit if a change occurs in the shareholding control of the company (Listing rule 10.18) unless such termination payments are agreed to by shareholders at a general meeting (Listing rule 10.19).

In essence the legal view is inconsistent with agency-based arguments. Agency arguments are based on an assumption that executives will act in their own interests, though the parties they contract with are aware of these incentives and incorporate bonding and monitoring arrangements to control the potential conflict. The legal view states that executives must not act in their own interests and must put the interests of the corporation first.

3. GLOBAL TRENDS IN EXECUTIVE COMPENSATION

3.1 US Evidence

While there are many other papers that describe executive compensation for US executives, we draw on the recent monograph-length paper by Murphy (2013) to provide graphical representations of

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7 Retirement is broadly defined to include loss of office and resignation.
the current and historical levels of payment to US CEOs in S&P 500 firms. Few would doubt the seminal and on-going contributions that Kevin Murphy has made to the development of executive remuneration, and hence a reliance on his recent work to “paint the picture” for the US is warranted.

Figure 2.1 (reproduced with Kevin Murphy’s permission from Murphy, 2013) below shows mean and median 2011 pay for CEOs of 465 S&P 500 corporations. Several key statistics are worthy of note:

- Average total compensation is estimated at $11.6 million (based on grant date valuations) or $12.3 million, based on realized pay. Median compensations, reflecting the considerable skew in executive compensation, are $9.6 and $7.8 million respectively.
- The biggest component of executive compensation is associated with stock awards (both restricted stock and performance shares). Stock awards now comprise between 31 per cent and 34 per cent of total mean and median compensation for US CEOs.
- Base salary is between 14 per cent and 18 per cent of mean total compensation, and 11 per cent to 13 per cent of median total compensation.
- Stock options comprise 18 per cent or 19 per cent of mean total compensation, while options grants represent 16 per cent of median grant-date total compensation.
- Non-equity incentive payments, which represent payouts during the current year for the current year and prior year awards, range between 18 per cent and 24 per cent of mean total compensation, and 15 per cent to 20 per cent of median total compensation.
Figure 2.3 from Murphy (2013) shows average total executive compensation for S&P 500 firms for the period 1970 to 2011 (expressed in 2011 purchasing power) and its division into equity and non-equity components. Several things are worthy of note, in particular:

- Total pay increased from around $1.1 million in 1970 to $10.9 million in 2011, down from a peak of $18.2 million in 2000. Thus over this 42 year period CEO pay for S&P 500 firms outstripped inflation by a factor of approximately 10.
• Non-equity pay, which includes base salaries, payouts from short-term and long-term bonus plans, deferred compensation and other benefits, increased from around $1.1 million in 1970 to approximately $4.1 million in 2011. Thus non-equity pay increases outstripped CPI adjustments by a factor of approximately four.

• The growth in equity-linked pay, which includes the grant date values of stock options and restricted stock, is far more dramatic. In the period 1970 to 1978 total pay is almost entirely comprised of non-equity pay. However, by 2011 equity pay averages around $6.8 million.

• While it is not claimed to be causal, it is interesting to note that just a few years after Jensen and Meckling’s (1976) paper on agency theory, the switch toward the use of equity pay as part of CEO compensation starts to emerge. By 1998 equity pay became the majority part of total executive compensation, and this is maintained in each year through to 2011.

• However, as noted by Kaplan (2012, p. 21), while CEOs “earn a great deal, they are not unique. Other groups with similar backgrounds – private company executives, corporate lawyers, hedge fund investors, private equity investors and others– have seen significant pay increases where there is a competitive market for talent and managerial power problems are absent.”
Figure 2.4 below is also reproduced from Murphy (2013), again with permission. It highlights important trends in both the composition and level of median grant-date pay for CEOs over the years 1992-2011. Of note are the following points:

- Median total pay in Figure 2.4 in each year is significantly below mean pay in Figure 2.3, reflecting the skewness in pay distributions for US CEOs.
- Much of the growth in median total pay between 1992 and 2011 is due to an escalation in stock-option compensation between 1993-2001 coupled with a dramatic shift away from stock option grants towards restricted stock from between 2002 and 2011.
- In 1992 base salaries are about 41 per cent of the $2.9 million median total CEO compensation package, while stock options accounted for about 25 per cent. By 2001, base
salaries are only about 18 per cent of the median pay package, while options are more than 50 per cent.

- In 2011 more than two-thirds of median total pay is in the form of equity-based compensation.

3.2 International CEO Pay Trends

Having reviewed growth in CEO payments in the US, the question of whether US executives are paid more than their international counterparts somewhat naturally arises. This issue is taken up in a recent paper by Fernandes et al (2013). The paper argues, contrary to widely accepted views in the executive compensation literature that US CEOs are paid significantly more than those in other nations (see Murphy, 1999 and Bebchuk et al., 2002 for example), that the US pay “premium is economically modest and primarily reflects performance-based pay demanded by institutional shareholders and independent boards” (Fernandes et al. 2013, Abstract, p. 323). International comparisons of CEO pay are difficult because regulations in relation to pay disclosures are different. An exception is however the UK where CEO pay disclosures have been mandated since 1995. While Conyon and Murphy (2000) show that US CEOs earn almost twice UK CEOs in 1997 (after controlling for industry, firm size and a variety of firm and individual characteristics), Conyon et al. (2011) show that the pay premium of US to UK CEOs had
fallen to 40 per cent by 2003, and this premium can be further reduced after adjusting for the risk inherent in undiversified CEO equity portfolios. Fernandes et al. (2013) use data from 14 countries that required detailed CEO pay disclosures by 2006. Their sample of 1,648 US and 1,615 non-US firms comprise nearly 90 per cent of the market capitalization of publicly listed firms in these countries. They show that US CEOs earn an average of 26 per cent more than their foreign equivalents in 2006, far lower than that documented in prior academic research. Their experiment controls for ownership and board structure (US firms tend to have higher institutional ownership and more independent boards) in addition to the usual firm-specific attributes (size, industry, stock price volatility and performance and growth opportunities) and CEO characteristics (age, tenure, education and past experience). Figure 1 and 2 from Fernandes et al. (2013) provide the main features of their findings. The main points to note form these figures are:

- In Figure 1 Panel A there are controls for only firm size and industry, while in Panel B additional controls for other firm characteristics, ownership, and board characteristics. Panel A shows that US CEOs earn substantially more than non-US CEOs. However, after the additional controls are added, US CEOs have effective parity in pay levels with other Anglo-Saxon nations (UK, Ireland, Australia and Canada) as well as Germany, Italy and Switzerland.

- Figure 2 depicts the results after risk adjustment using the Hall and Murphy (2002) approach. Again, Panel A adjusts only for firm size and industry, while Panel B includes the additional controls. In Panel A the US estimated pay using the “certainty equivalence” approach is $2.1 million, and this is statistically higher than the non-US pay of $1.46 million. When the additional controls are introduced in Panel B the results show that US CEO pay is significantly less than in the UK and Australia, and insignificantly different to CEO pay in Canada, Italy, Ireland and Switzerland.
Figure 1  Predicted level and structure of 2006 CEO pay for firms with $1 billion in revenues

Panel A. Controlling for sales and industry

Panel B. Controlling for sales, industry, and firm, ownership, and board characteristics

Note: The figure compares estimated 2006 CEO pay for a CEO running a hypothetical firm with $1 billion in sales on an "average" industry. Panel A controls for sales and industry (as in column (1) of Table 3). Panel B controls for sales, industry, and firm, ownership, and board characteristics (as in column (4) of Table 3). The "non-US average" is weighted by the number of firms in each country. The pay composition percentages are defined as the average composition across all CEOs for each country from Table 1.
Figure 2  Predicted level of risk-adjusted 2006 CEO Pay for firms with $1 billion in revenues

Panel A. Hall-Murphy Risk Adjustment - Controlling for sales and industry

Panel B. Hall-Murphy Risk Adjustment - Controlling for sales, industry, and firm, ownership, and board characteristics

Note: The figure compares 2006 CEO risk-adjusted pay for a CEO running a hypothetical firm with $1 billion in sales on an "average" industry. Risk-adjusted pay is estimated using the Hall-Murphy (Panels A and B) and Conyon-Core-Gay (Panels C and D) certainty equivalence approaches. Relative risk aversion is 2 and safe wealth is the maximum between $5 million and four times total pay. Panels A and C control for sales and industry (as in Panel A column (3) and Panel B column (1) of Table 5). Panels B and D control for sales, industry, and firm, ownership, and board characteristics (as in Panel A column (4) and Panel B column (2) of Table 5).
3.3 Australian Evidence on CEO Pay

Merhebi et al. (2006) study CEO cash pay for the Top 500 public firms (based on reported profits) for period 1990-1999.\(^8\) They find that (i) CEO pay is statistically positively related to firm size (CEO pay increases by 2.74 per cent for a 10 per cent increase in firm size, measured as revenue) (ii) CEO pay is insignificantly related to contemporaneous measures of performance (return on assets, return on equity and share price performance) (iii) CEO pay is positively associated with the change in current and lagged period shareholder wealth (a CEO receives a 1.16 per cent increase in pay for a 10 per cent increase in shareholder wealth) and (iv) CEO pay sensitivity decreases as the riskiness of the firm increases. Thus Merhebi et al. (2006)'s results are consistent with efficient contracting explanation, in contrast to most prior Australian research which finds negative or insignificant pay-performance relationship (Defina et al., 1994, Izan et al., 1998 and O’Neill and Iob, 1999) or the mixed results in Matolcsy (2000).

Chalmers et al. (2006) use the enhanced executive remuneration disclosure regulations introduced in Australia on 1 July 1998 to examine firm attributes that are associated with and explain differences in CEO pay levels, and whether CEO compensation and performance relationships are consistent with labour demand theory (efficient contracting) or rent extraction (managerial power). They use Top 200 ASX firms, based on market capitalization, for the period 1999-2002, resulting in 532 firm-year observations (after various deletions). The mean (median) total compensation is $1.888 million ($1.057 million).\(^9\) Total compensation is found to be significantly positively related to firm size, performance (return on assets), the idiosyncratic risk of the firm (variance of equity market return) and the size of the board of directors, while a significant negative relationship is found for CEO ownership. Total compensation is divided into four components, namely fixed salary, bonuses, the value of option grants and the value of share grants. The fixed salary and share-based components of compensation are consistent with efficient contracting explanations, while bonuses and option grants are found to be consistent with rent extraction (particularly for smaller firms and for firms with above average performance). The rent extraction is statistically significant, though it is economically negligible and short-lived, in contrast to US evidence where rent extraction is wide-spread, persistent and economically substantial (at least according to Core et al., 1999).

\(^8\) The data disclosed at the time of the Merhebi et al. (2006) study do not provide details on equity-based compensation.
\(^9\) Compensation was not adjusted for changes in the consumer price index; hence these total compensation amounts are measured in the average of 1999-2002 purchasing power.
Matolcsy and Wright (2007) provide descriptive evidence on CEO pay for the period 1999-2001, following the introduction of increased disclosure regulations that came into effect on 1 July 1998. Using firms in the Top 500 with available data they find 238 firm years (34 per cent) where only cash is paid to the CEO and 458 firm years (66 per cent) where cash and equity-based compensation is paid. CEO compensation is highest in the cash and equity-based compensation group of the banking and finance sector where the mean (median) compensation for the equity-based group is $1.865 million ($1.153 million). These pay levels are however much lower than in the US where Murphy (1999) reports median CEO compensation of $US4.582 million for 1996. Matolcsy and Wright report consistently significant positive correlations between CEO pay and firm size, consistent with Merhebi et al. (2006). We provide more recent data on CEO salaries for Australian CEOs in a series of tables below.

Matolcsy et al. (2009) note that prior evidence on the association between market-based measures of performance and stock and option-based compensation reveals both positive and negative effects, contradictory empirical results that they seek to explain. They suggest that stock-based compensation can be used as a reward for past performance (in which case the market will view the grant as an expense) and as an incentive for future performance (in contrast, the market will view the grant as an asset). If stock-based compensation is a reward for past performance, a negative relationship is expected; whereas a positive relationship is expected if these payments are made to provide incentives for future performance. They use 259 firm-year observations for 1999-2004 disclosures and divide these into “reward” and “incentive” groups using firm prior period return characteristics and the degree of “at-the-money” of the granted options to form the groups. An instrumental variables approach is used to control for the mechanical relationship between the value of a share and the value of an option. After controlling for this endogeneity, the results show a statistically positive association for the “incentive” group; however the “reward” group is statistically insignificant.

Matolcsy and Wright (2011) use data for 3,053 firm-years drawn from 1999-2005 disclosures made by Top 500 ASX listed firms to investigate efficient and inefficient CEO compensation structures. Approximately 30 per cent of these firm-years have cash only compensation systems, while the remaining firms use both cash and equity-based compensation. They predict that firms that adopt CEO compensation structures that deviate from the “efficient compensation structure” will have lower performance that firms that have an efficient structure. Performance is measured using both accounting-based measures (return on assets and return on equity) and market-based measures (fully-diluted change in the stock price and fully-diluted change in the stock price adjusted for CAPM beta.
risk). They estimate a cross-sectional logit model using data for all firm-years where the dependent variable equals one for the equity-based group and two for the cash group. The independent variables include proxies for firm size, the market-to-book ratio, various measures of firm performance, the variance of accounting-based performance, firm leverage and CEO and blockholder ownership. The logit model results are then used to “predict which compensation group a firm could belong to” (p. 755). The performance of firms in and not in the predicted group is then investigated, with those not in the “optimal” group predicted to have worse performance. The results confirm this prediction for all four performance measures.

We used the Sirca Corporate Governance database to produce mean and median pay levels for Australian listed firms for the years 2001-2011, as well as the average over all years. The results, which are expressed in December 2011 purchasing power units, are in Tables 1 - 6 and Figures 1 - 6 below. Table 1 covers all firms in the database, a total of 8,695 firm years or an average of 790 firms per year. Table 2 relates to the top 100 firms by market capitalization each year, while Table 3 and 4 cover the top 200 and top 300 firms respectively. Table 5 relates to medium sized Australian firms, represented by firms in the top 101-300 by market capitalization. Finally, Table 6 covers small listed firms, defined as all firms in the database other than the top 300. A corresponding figure is provided for each of these tables. At this stage we have not attempted to control for firm characteristics nor have we attempted to investigate pay-performance relationships. The Sirca corporate governance database captures companies that represent well over 95 per cent of total ASX market capitalization. The following points summarize the main descriptive statistics in Table 1 and Figure 1.

- Mean (median) total compensation for all companies in Table 1 grew from $0.779 million to $1.215 million between 2001 and 2011 ($0.385 million to $0.638 million). Thus CEO pay has grown faster than the Australian CPI. There is a clear pattern of higher pay for the larger companies. The mean (median) average total compensation over the 11 years are as follows:

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10 Imputation (franking) credits on dividends are ignored.
11 Matolcsy and Wright (2011) also estimate this logit model each year and find results that are generally the same as the main results with respect to sign of the “wrong group” dummy, though not all cases are statistically significant.
12 Approximately 95 per cent of the equity group and 25 per cent of the cash group are correctly predicted.
13 Data for 2012 have not yet been released by Sirca, though these data have been collected, and 2011 data are incomplete. These additional records will be released within the next few months after further verification and validation checks have been conducted. We will update these results when the 2012 data are released.
Top 100 firms (large firms in Table 2) $3.791 million and $2.927 million

Top 200 firms (Table 3) $2.627 million and $1.652 million

Top 300 firms (Table 4) $2.049 million and $1.151 million

Top 101-300 firms (medium size firms in Table 5) $1.178 million and $0.855 million, and

Firms ranked 301 and higher (small firms in Table 6) $0.451 million and $0.346 million.

- Equity based compensation for all firms in Table 1 is 19.4 per cent of mean total compensation and 12.9 per cent of median total compensation over all sample years 2001-2011. Again there is a very clear pattern in relation to firm size, with the proportion of total compensation paid in the form of equity rising as firm size increases. The mean and median proportions of equity compensation to total compensation are as follows from Tables 2 to 6:
  - The largest firms (top 100) - mean proportion 21.7 per cent, median 22.9 per cent
  - The largest 200 firms – mean proportion 21.0 per cent, median 16.7 per cent
  - The largest 300 firms – mean proportion 20.7 per cent, median 18.8 per cent
  - Medium sized firms (top 101-300) – mean proportion 19.2 per cent, median 16.9 per cent
  - Small firms (301 and up) – mean proportion 15.9 percent, median 9.4 per cent

Thus the equity component of Australian CEO compensation is much lower than in the US, where the equity-based component of total compensation has exceeded 50 per cent in each of the years from 1998.

- There is a clear trend upward in the use of equity based compensation, with mean (median) proportions in Table 1 for all firms in 2001 being 8.6 per cent (6.4 per cent), with these rising to 22.7 (16.7) per cent by 2011, respectively. This growth in the use of equity based compensation is more pronounced in the larger firms than for smaller firms. Specifically Table 2 to 6 show that between 2001 and 2011 equity forms of compensation as a proportion of total compensation has increased as follows:
  - Table 2 (the largest firms) the growth is from 8.7 per cent to 24.4 per cent
  - Table 3 (top 200 firms) the growth is from 10.5 per cent to 23.5 per cent
  - Table 4 (top 300 firms) the growth is from 10.1 per cent to 23.3 per cent
Table 5 (medium sized firms) the growth is from 12.2 per cent to 21.6 per cent, and
Table 6 (small firms) the growth in equity based compensation as a proportion of total compensation between 2001 and 2011 is from 4.2 per cent to 20.7 per cent. These proportions are however somewhat misleading because the average equity based payment in 2001 to small firms is only $13,762 per firm, and this rose to $122,135 per firm by 2011. Among the top 100 firms equity based compensation dwarfs these values with mean equity based compensation rising from an average of $215,292 in 2001 to $763,703 by 2011.

Yearly growth figures show that mean and median CEO compensation for all firms in Table 1 grew quite strongly from 2001-2007, but the GFC has stopped this trend, resulting in mean CEO compensation in 2011 at approximately the same level as in 2007. Median CEO pay has however continued to show modest growth from 2007 to 2011. The levels of pay for the top 100 firms have however declined quite dramatically between 2007 and 2011. The average total compensation for a CEO of a top 100 firm was $5.170 million, and 2011 where the average pay was $3.158 million. On average a top 100 CEO in Australia is about $2 million worse off in 2011 that he / she was in 2007. Among the top 200 firms the drop in average pay between 2007 and 2011 is $1.325 million, for the top 300 firms it is $0.579 million and for medium size firms the average CEO salary drop by $0.462 million. Small firm CEO total compensation bucks this trend, rising from $0.524 million in 2007 to $0.589 million in 2011.

Irrespective of the groupings we form however, Australian CEO total compensation (both means and medians) have outstripped the CPI over the 11 years we summarize. These trends are clearly evident in each of the figures we provide. The only group where compensation drops over this 11 year period is the mean cash component of top 100 firms, which drops by $30,328. However equity compensation rises by $544,411 meaning that top 100 firms’ total compensation outstrips inflation by about a half a million dollars.

4. EMPIRICAL EVIDENCE ON EXECUTIVE COMPENSATION

4.1 Pay Performance Relationships
There is an extensive literature on pay performance relationships (see, for example, review articles by Frydman and Jenter, 2010, Murphy, 1999 and 2013, Jensen and Murphy, 2004, Kaplan, 2012, Ferrarini et al., 2009). We do not try to fully canvass this voluminous work. Rather we attempt to draw out broad trends that emerge from review papers that involve time series and cross-sectional examinations.

The international empirical finance evidence is largely consistent with the proposition that executive pay is significantly positively correlated with firm performance. However, the economic significance of this relationship is generally small.\textsuperscript{14}

Frydman and Jenter (2010) show that in the US CEO compensation between the end of World War II and before the mid-1970s is characterized by low levels of pay, little dispersion across top managers, and moderate pay-performance sensitivities. From the mid-1970s to the early 2000s, compensation levels grew dramatically, differences in pay among CEOs widened, and equity incentives tied managers’ wealth closer to firm performance. Average total pay for US CEOs declined from 2000 to 2011, in large part due to the technology bust of 2000-2001 and the GFC of 2007-2008. These relationships are clearly evident in Figure 2.3 (above) drawn from Murphy (2013).

Equity-based compensation is used to align the interests of shareholders and managers (Jensen and Meckling, 1976) because decisions that increase shareholders’ wealth also increase managers’ wealth. However, managers are risk-averse (due to holding a concentrated portfolio) and hence do not want too much volatility in their pay. In the US during the 1990s the pay-performance sensitivity of CEO’s wealth surged, mostly due to use of executive options (Frydman and Jenter, 2010). In the US between 1990 and 2011 the evidence suggests that CEOs are rewarded for good performance, and penalized for poor

\textsuperscript{14} Talis Putnins, a colleague at the University of Technology, Sydney, points out that the psychology, behavioural economics and management organization literature note that the effectiveness of performance-based incentives depends on the context, and one of the key characteristics of the context that their effectiveness depends on is the complexity of the task. Performance-based incentives work well for simple tasks, but fail when the task is complex. Without question, CEO decisions are complex. Glucksberg (1962) takes the classic psychology experiment known as the “candle problem”, which is a task that with a very subtle twist has two levels of complexity, and tests a treatment with financial performance-based rewards; the finding is that the performance-based rewards increase performance (speed of solving the candle problem) in the low complexity version of the task, but decrease performance in the high complexity version. An example of how task complexity affects the effectiveness of performance-based incentives in a business context is a paper by Winters and Latham (1996) where business school students as participants performed well on a simple task but poorly on a complex task. “These findings suggest that when attempting new complex processes, such as acquiring new businesses, organizations should set specific difficult learning as opposed to performance outcome goals” Winters and Latham (1996, Abstract). A recent behavioural economics study by Ariely et al. (2009) finds that psychological research suggests that excessive rewards can, in some cases, result in a decline in performance. They test whether very high monetary rewards can decrease performance and find that very high reward levels had a detrimental effect on performance.
performance (Kaplan, 2012). However, the fractional ownership of most US CEOs in the firms they manage remains low, and is even lower today than it was in the 1930s (Frydman and Jenter, 2010). Kaplan (2012) also shows that boards do monitor CEOs. The rate of CEO turnover has increased in the 2000s compared to the 1980s and 1990s, and is significantly tied to poor stock performance.

The time-series relationship between pay and performance is illustrated in Figure 34 drawn from Kaplan (2012), reproduced below. The blue bars represent average CEO realized pay for each year from 1993-2010 for all S&P 500 firms, while the S&P500 index (expressed in 2010 purchasing power) is depicted by the salmon coloured line (with light green triangles). The time series correlation between the two series is clear. Kaplan (2012) also shows strong cross-sectional correlation between pay and performance.

**Figure 34**

![Average Realized Pay of S&P 500 CEOs vs. S&P 500 from 1993 to 2010 (in millions of 2010 $)](image)

In Europe, levels of pay were somewhat lower than in the US, but variable elements were also predominant; the median CEO total salary in 2007 was €5,020,000, with a median base salary of €1,300,000 (Ferrarini et al., 2009, p. 8).
4.2 Executive Share Options and Dividend Policy

Fenn and Liang (2001) examine how managerial stock incentives affect corporate payout policy using data on more than 1,100 US non-financial firms during 1993-1997. They find that management stock ownership is associated with higher payouts by firms with potentially the greatest agency problems, i.e., those with low management stock ownership, few investment opportunities and or high free cash flow. When managerial stock ownership is higher, CEOs are willing to increase dividends and thus participate in dividend distributions. Fenn and Liang (2001) also find that management stock options are related to the composition of payouts. They report a strong negative relationship between dividends and management stock options (the implication being that higher stock option ownership (which are not dividend protected) results in lower dividend payouts), and a positive relationship between repurchases and management stock options (providing these repurchases take place at current (efficient) market prices the repurchase is a zero net present value investment and should thus leave share price unchanged, ignoring any signaling implications). Fenn and Liang’s results suggest that the growth in stock options may help to explain the rise in repurchases at the expense of dividends, and noted in Fama and French (2001).

The Fama and French (2001) “disappearing dividends” is a theme taken up in Brown et al. (2007). They test whether executive stock ownership affects firm payouts using the 2003 dividend tax cut to identify an exogenous change in the after-tax value of dividends. It is now well-appreciated that much of the research in corporate finance and corporate governance is plagued by endogeneity in experimental design (see in particular Adams et al., 2010 and Li and Prabhala, 2008); accordingly identifying an exogeneous shock provides Brown et al. (2007) with a natural experiment that allows these self-selection issues to be controlled. Brown et al (2007) find that executives with higher ownership were more likely to increase dividends after the tax cut in 2003\(^{15}\), whereas no similar relationship is found in prior periods when dividend tax rates were higher. They find that, relative to previous years, firms that initiated dividends in 2003 were more likely to reduce repurchases than firms that did not initiate dividend payments. Brown et al. (2007) also investigated the share price reaction to the dividend tax cut, finding that the firms that paid large dividends in the past and that had individual shareholder

\(^{15}\) Brown et al. (2007, p. 1936) that “The 2003 dividend tax cut raised the after-tax value of a $1 dividend to high income shareholders from 61.4 cents to 85 cents, a 38% increase. Thus, the cost of initiating or increasing dividend payments for executives who have large direct stock ownership decreased substantially in 2003. Moreover, executives who have undiversified wealth with large company stock ownership may place additional value on dividends for liquidity reasons, stemming from the fact that they may face explicit contractual restrictions or implicit restrictions (e.g., insider sales may be viewed as a negative signal by the market) on their ability to sell shares of stock”.
ownership experienced stock price gains in response to the tax cut. Their results further suggest that the market at least partially anticipated that firms, whose executives have large stock holdings, would substitute dividends for tax-advantaged share repurchases or earnings retention, and thus potentially raise the tax burden on distributions for shareholders.

4.3 CEO Power and CEO Pay

Ryan and Wiggins (2004) examine empirically the relationship between director compensation and board-of-director independence. Their evidence suggests that independent directors have a bargaining advantage over the CEO that results in compensation more closely aligned with shareholders’ objectives. Firms with more outsiders on their boards award directors more equity-based compensation. When the CEO’s power over the board increases, Ryan and Wiggins find that compensation provides weaker incentives to monitor CEO actions. They also find that firms with more inside directors and with entrenched CEOs use less equity-based pay, and that firms with entrenched CEOs, and CEOs who also chair the board, are less likely to replace cash pay with equity.

4.4 Takeovers and CEO Pay

As with several areas of empirical research in finance, the evidence on CEO pay following mergers is somewhat mixed, as too is the evidence on merger returns for acquiring firms (see Loughran and Vijh, 1997 and Moeller, Schlingemann and Stulz, 2004 and 2005). On the one hand, consistent with efficient contracting, Datta, Iskandar-Datta, and Raman (2001) document a strong positive relation between acquiring managers’ equity-based compensation and merger performance. Also, Lehn and Zhao (2006) conclude that CEOs who make value destroying acquisitions are more likely to be subsequently replaced. On the other hand, consistent with managerial power explanations, Bliss and Rosen (2001) show that CEO compensation and wealth typically increase after large bank mergers even if the bidder’s stock price declines. Grinstein and Hribar (2004) find that acquiring CEOs who have more power to influence board decisions receive significantly larger M&A bonuses. Each of these studies focus on managerial incentives around acquisitions. In contrast, Harford and Li (2007) compare compensation policies implemented in firms that undertake either acquisitions or capital expenditures (external vs. internal investment). Consistent with Bliss and Rosen (2001), Harford and Li (2007) find that CEOs are financially better off from making acquisition decisions, even though these decisions typically destroy shareholder value. Further, Harford and Li show how the CEO’s exposure to poor long-run performance depends on the strength of the board.
A recent Australian study by Bugeja et al. (2012) investigates CEO compensation in mergers and acquisitions and concludes that overall their findings are more consistent with the predictions of incentive alignment effects of efficient contracting than managerial power theory, albeit that these theories are not mutually exclusive and that some evidence is consistent with managerial power. They find using a sample of 177 M&A deals and 4,002 control firms drawn from 2000 to 2007 and show that CEO compensation increases significantly in the M&A completion year and the subsequent year. All components of CEO compensation (salary only, bonus only, salary and bonus, shares, options and total compensation) are found to increase. CEOs with longer tenure and those with bigger boards are paid more, as too are CEOs of deals that have a more negative announcement effect (consistent with managerial power) however other measures of managerial power (CEO on the nominating committee, higher CEO ownership and the proportion of insiders on the board) are significantly negatively related to CEO compensation (consistent with efficient contracting). The study also shows that CEO compensation in acquiring firms is positively related to measures of performance (return on assets and stock market performance). Finally CEOs are paid more for bigger takeovers, if they acquire targets in different industries and if they revise (upwards) the original offer price to the target.

4.5 Risk Taking Behaviour of CEOs

While excessive risk-taking by US CEOs, particularly in the finance sector, has been blamed in part for the GFC, shareholders can easily diversity away from firm-specific risk through portfolio diversification. Managers however have much of their wealth tied up in the firm they work for, and hence they have incentives to be somewhat cautious in their decision-making. Incentive aligning devices can work to some extent, but as shown in Murphy (2013) the value that risk-averse undiversified CEOs managers place on equity-based forms of compensation can be substantially less than the cost of this compensation to the company. These issues are investigated in Suh (2013) who studies how better monitoring devices such as incentive awards and strong shareholder rights influence risk-taking incentives for a sample of more than 8,000 firm years for U.S. multi-segment firms. She finds that

- CEOs whose wealth is more sensitive to changes in the stock price, as measured by stock option delta, tend to pursue risk-increasing investment policies by allocating greater funds to riskier segments in a diversified firm.
- Equity ownership encourages managerial risk-taking only when CEOs are at the late stage of their career, which is consistent with the theory of managerial career concerns, and
Managers in firms with fewer anti-takeover provisions, such as poison pills and golden parachutes, tend to increase the level of investment in a segment with higher risk, consistent with shareholders’ preferences.

5. DESIGN PRINCIPLES

Murphy (2013) concludes (in part) his comprehensive analysis of the evolution of US CEO remuneration with the following: “Indeed, what makes CEO pay both interesting and complicated is the fact that the efficient contracting, managerial power, and political paradigms co-exist and interact” (Murphy, 2013, p. 156). Similarly Ferrarini et al.’s (2009) survey of European regulation on CEO remuneration highlights that: “Establishing rules or guidelines on optimal pay, which also respond to public concerns with respect to fairness, is not an easy task” (Ferrarini et al., 2009, p. 5). Nonetheless, we “put our heads on the chopping block” in the spirit of generating debate, discussion and hopefully consensus.

Cronqvist and Fahlenbrach (2012) investigate the way CEO compensation contracts change when public firms are acquired in a leveraged buyout (LBO) by private equity firms, who the authors regard as among the most financially sophisticated principals in US capital markets. A (small and non-random) sample of 20 large LBOs made between 2005 and 2007 by the largest US private equity firms is used. They find several contract features, but not all, are redesigned, as follows:

- CEO base salary and bonuses increase by around 25 per cent, particularly when new executives are hired to work in these highly levered organisations.
- A more performance-sensitive contract is negotiated where CEO effort is important. Contracts are redesigned so as to avoid qualitative, nonfinancial and earnings-based measures. Cash-flow based measures, such as earnings before interest, taxes, depreciation and amortization (EBITDA) that allow less accounting discretion than earnings, are adopted for short-term measures of performance. Longer term performance is measured using internal rates of return (IRR) or multiples of estimated firm value to acquisition price. A common contract provision is that about 50 per cent of equity grants will performance-vest if IRR and multiple hurdles are met at exit.
- CEO severance pay multipliers remain unchanged.
• Unvested options and restricted stock grants are typically forfeited if a CEO is dismissed.
• The sale of vested shares for dismissed executives is restricted, typically through a right of first refusal and limits on the set of parties that can acquire vested stock. Dismissed CEOs find it practically impossible to unwind their vested equity positions.
• Perquisites, such as personal usage of firm assets and tax gross-ups, remain unchanged after the PE transaction.

Murphy and Jensen (2011) argue that their research and consulting experience leads to a conclusion that almost all CEO and executive bonus plans are deeply flawed, resulting in counterproductive incentives and decisions that harm shareholders. Their paper first describes a typical bonus plan and then moves to a discussion of using the wrong pay-performance relationships, the wrong standards or targets, the wrong performance measures, ex-post adjustment to bonuses (including clawbacks) and the role of banking bonuses in the GFC. The paper contains a series of recommendations (it so happens that there are 10 recommendations) for bonus plan design.

A typical bonus plan, drawn from Murphy and Jensen (2011, p. 4) is depicted below.
Murphy and Jensen (2011) argue that Figure 1 “is replete with incentive problems that destroy value”. Suppose a CEO has an upper hurdle for ROE of 15 per cent, but is confident that the firm can easily surpass that threshold. A CEO they interviewed stated “I’d have to be the stupidest CEO in the world to report an ROE of 18%. First, I wouldn’t get any bonus for any results above the cap. Second, I could have saved some of our earnings for next year. And third, [the board of directors] would increase my target performance for next year.” A bonus plan like this also motivates earnings management, sometimes taking a “big bath” and it encourages low-balling in setting performance targets. They are also short-term in their focus. And, importantly, the pay-performance relationship is non-linear.

Accordingly, Murphy and Jensen recommend (R1) that

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16 All recommendations from Murphy and Jensen (2011) have been quoted verbatim.
- Non-linear pay-performance relations induce CEOs to manipulate financial results to game the incentive system. Linear plans not only mitigate dysfunctional incentives to destroy value but have the added advantage of being easy to communicate and implement.

A linear plan, again drawn from Murphy and Jensen (2011, p. 11) is depicted below:

**Figure 2** The problems with typical bonus plans can be mitigated by making the plan linear

A linear incentive plan with no caps on bonuses and no floor or hurdle bonus (the latter achieved by a reduction in base salaries or by instituting a Bonus Bank that can be charged for negative bonuses in periods of low performance).

The typical bonus plan in Figure 1 above encourages people to lie. Accordingly Murphy and Jensen (2011, p. 19) recommend (R2) the separating of the budgeting process from the targets set in compensation formulas, as follows:

- Tying annual or multi-year bonuses to budget targets induces game-playing and lying that destroys value and results in a system that is seriously out of integrity. In fact such systems pay people to lie and punish them for telling the truth. Importantly, the information critical to
coordinating the disparate activities of a large complex organization gets unnecessarily muddied or destroyed in the process. By separating budgets from bonuses, integrity can be restored and productivity will increase dramatically.

It is clear that allowing managers to select their peer group for performance evaluation potentially involves perverse incentives, accordingly R3 is as follows:

- While benchmarks based on relative performance can be used effectively in organizations (and have many advantages over using “absolute” performance), the executives paid under the plan must not be responsible for selecting the comparison group.

It is also clear that a benchmark set this year that incorporates prior-year performance will ensure that executives who perform well in one year will be penalized the next, and neither should benchmarks be tied to measures that can be influenced by the CEO. Accordingly R4 and R5 are:

- Setting benchmarks based on prior-year performance ensures that executives are penalized next year for good performance this year. Incentive payments should not be tied to prior-year performance.

- More generally, incentive payments should not be tied to benchmarks that can be influenced by CEOs. When incentive payments are tied to benchmarks, incentive-plan participants can increase their bonus by improved performance or by reducing the benchmark. Efforts to reduce the benchmark are generally value destroying and divert resources from activities that could create value.

It has been long-recognized that ratios can be affected by altering the numerator or the denominator. Typically bonus plans want to encourage the numerator to be increased (because the numerator typically uses measures such as revenue, earning, EBIDTA) however a value of ratio can be increased if the numerator is managed downward. Typically managing the value of the denominator (assets, sales or equity) is value destroying. Murphy and Jensen (2011) somewhat controversially recommend, given the prevalence of measures such as ROA or ROE17, in R6 that:

- Performance measures should not be ratios. Examples include both rates of return or earnings per share. Simply put: if it is a performance measure and a ratio, it’s wrong. Using performance measures that are ratios will generally lead to decisions that destroy value. Typically the problems that arise with ratio performance measures occur when CEOs manage the denominator of the ratio rather than the numerator.

17 Murphy and Jensen (2011, pp. 35-37) show that ratio measures can quite easily be converted to “valid” performance hurdles providing the compensation committee decides on an appropriate proportion of the dollar amount of the numerator of a ratio as going into a bonus pool.
CEOs can and do influence capital structure and a firms’ cost of capital. The distinction between accounting profit and economic profit (Economic profit = Accounting profit - Cost of capital X Amount of capital) is that economic profit incorporates the opportunity cost of capital employed in the firm. Accordingly R7 is:

- Performance measures should provide incentives for executives to recognize both the cost of capital and the amount of capital consumed. Ignoring the cost of capital and the quantity of capital in designing performance measures is an invitation to value destruction for CEOs who can influence decisions over the quantity and allocation of capital.

It is virtually impossible to make fool-proof objective and accurate measures of the contribution of an individual to firm value. Accordingly Murphy and Jensen suggest that compensation committees should have the power to make after-the-fact ex post adjustments to both the measure of CEO performance and the compensation actually paid to the CEO. Accordingly they make a series of recommendations (R8 to R10) to address these concerns, as follows:

- Incentive plans should include a subjective component. Every bonus system should allow for denial or adjustment of a bonus that is not earned or is earned from actions that are inappropriate, are out-of-integrity, game the system, harm others, or otherwise damage the firm. Similarly bonus systems should allow for subjectively based discretionary rewards for actions that create value that are not captured in the objective performance measures.

- CEOs should be held accountable for factors that are beyond their control if they can control or affect the impact of those uncontrollable factors on performance. A CEO with a good compensation plan will be motivated to plan for surprises that he cannot control. Resourceful CEOs can take actions that will reduce the impact of uncontrollable factors on their performance, but they will tend not to do so if they are not held accountable for the effects of those factors.

- Every incentive system including bonuses, option and other equity-based programs should provide for recovery of rewards (including the profits on sale of options and equity) if and when there is future revision of critical indicators on which the rewards were based or received. When compensation committees find that executive rewards in prior periods were inappropriately high (due to reporting lags, subsequent revisions to performance data, manipulated data, “managed earnings”, fraud or short term prior decisions that generate substantial losses in the future) the committee should retain the right to recover the ill-gained rewards. The use of bonus banks or deferred compensation can facilitate the necessary clawbacks by offsets to future payments otherwise due to the responsible executives.

While we agree with many of the recommendations made by Murphy and Jensen (2011) we came up, quite independently with a different set of principles. Murphy and Jensen’s recommendations focus
on bonus plans, while ours are somewhat broader in scope. In developing these principles we were encouraged by colleagues to set out our views in the spirit of having a blank sheet of paper, though recognizing that the separation of ownership and control, and the attendant agency and incentive problems that result, need to be incorporated into CEO compensation contracts. Here is our list.

1. Executive compensation should consist of two broad elements, a base pay and a flexible bonus element.

2. The base pay should be set taking into account the market for managerial talent. It can be adjusted to reflect changes in the market for managerial talent.

3. The bonus element should be based on performance of the firm, and its payment should vest over several years depending on performance outcomes over those years.

4. The bonus element paid should be capped.

5. Equity-based compensation grants should be adjusted for dividend payments. The exercise price of executive options should be adjusted downward, while restricted stock should have dividend entitlements and the entitlement to shares should be adjusted upward by assuming the dividend is re-invested to acquire additional stock.

6. Performance measurement is subject to measurement error, and accordingly performance should be classified as (i) statistically superior to the benchmark (ii) statistically indistinguishable from the benchmark and (iii) statistically below the benchmark. Performance that is statistically below the benchmark should result in no bonus reward for the current period. The performance bonus should be higher for statistically superior performance than it is for performance that is statistically indistinguishable from the benchmark.

7. Firm performance should be measured relative to an appropriate independently selected set of peers taking risk into account. Bonus awards should be based on a measure of abnormal performance calculated as the firm’s actual performance less the performance that is expected, given the actual performance of the benchmark peers. Firms with listed securities should use sharemarket returns in assessing abnormal performance. Audited accounting-based measures of performance can also be used providing that these are prepared on a consistent basis. Audited cash-flow measures of performance should be used as a check on the reasonableness of earnings measures.

8. Termination payments should be a function of the benchmark adjusted performance of the firm during the tenure of the executive. Three broad categories of performance (as in 6 above)
should be developed. Entitlements to incentive payments that have been earned but that have not yet vested should vest on a CEOs resignation, however these should be subject to some clawback. A CEO who is dismissed for poor performance or inappropriate or illegal conduct should receive no termination bonuses.

We illustrate the application of the measurement of the performance element for four prominent ASX listed companies (not randomly selected) in Table 7. The four companies, and their CEOs and appointment terms are as follows:

1. BHP Billiton Limited (ASX code BHP). We evaluate the performance of BHP during the term of Marius Kloppers, who was CEO from September 2007 to April 2013.
2. Telstra Corporation Limited (ASX code TLS). David Thodey was appointed as CEO of Telstra in May 2009, and he continues in this role.
3. Fairfax Media Limited (ASX code FXJ). Gregory Hywood was appointed CEO in December 2010, and he continues to hold that position.
4. Newcrest Mining Limited (ASX code NCM). Greg Robinson was appointed CEO in July 2011, and he too is continuing in that position.

For each of these companies we estimated the CAPM (with and without franking credits), the Market Model (with and without franking credits) and the zero-one version of the Market Model (with and without franking credits) using data from the SPPR database held at Sirca over the period of time during which the CEOs listed above were in that position. The index value we used is a weighted value of all companies in the SPPR database. For illustration we used monthly returns, though SPPR does allow these models to be estimated with more granular observations. Our results are presented in Table 7, which in summary shows that:

- All four companies have estimated betas that are consistent across the four methods of estimation. BHP, FXJ and NCM have $\beta$s that are insignificantly different from one, while the estimated $\beta$ for TLS is significantly (at the 1 per cent level) less than unity.
- TLS has a significant positive $\alpha$, ranging from 1.02 to 1.58 per cent per month. Hence David Thody would be judged to have delivered significant shareholder wealth creation, and hence he would be entitled to participate in the full bonus pool. This bonus however would not be paid immediately, and would vest over several years, in accordance with principle 3. It is worthy of note that the unfranked alpha for TLS (1.02 per cent in the CAPM and 1.31 per
cent in the Market Model) is 28 basis points lower than the equivalent models in which franking credits are included (1.30 per cent and 1.59 per cent). This underlies the importance of incorporating franking credits in constructing valid measure of shareholder wealth creation, because 28 basis points is 22 (18 per cent with franking) per cent of TLS’s outperformance.

- BHP’s $\alpha$ is insignificantly different from zero. Hence Marius Kloppers, while not delivering significantly positive performance, was CEO of BHP during a period where BHP earned, on a risk-adjusted performance, almost exactly what would be expected under the CAPM or the Market Model. During this period of time Marius Kloppers would earn a bonus, though it would not be the full award. It would however, once again, vest over several years.

- Both Gregory Hywood (Fairfax) and Greg Robinson (Newcrest) have managed their firms during a period of time where the risk-adjusted sharemarket performance has been significantly negative. Neither would be entitled to performance-based incentive payments.

6. CONCLUSIONS

Executive compensation has been controversial for several decades. Recent controversies over executive pay have sparked outrage from some sectors and calls for increased regulation and reform. Yet others argue that knee-jerk reactions to perceived abuses of pay can lead to a host of unintended and inefficient outcomes. This paper argues that much of this controversy is due to executives being rewarded via contracts that have weaknesses in design. We argue that few stakeholders in firms would object to generous (perhaps appropriate) compensation for managers whose performance results in abnormally high long-term shareholder wealth creation. We set out a set of eight design principles, developed from our intuition and a review of the extensive theoretical, regulatory and empirical literature, that we suggest should be the fundamental building blocks for designing executive remuneration systems in public firms, especially where ownership and control is separated. Our purpose is to generate broad debate and discussion hopefully leading to a consensus as to the principles that should be present in all executive compensation contracts such that the interests of shareholders and managers are aligned.

We illustrated the principles we have developed using four well-known ASX listed firms managed by high-profile CEOs. While these firms were not chosen randomly, the illustration is robust to the various methods we use to estimate risk-adjusted sharemarket performance. The illustration clearly shows the
importance of adjusting sharemarket performance for the franking credits that ASX-listed firms frequently pass to shareholders with their dividend payments.

It goes without saying, perhaps, that comments, criticisms and suggestions are welcome.
Table 1: Mean and median CEO compensation for all firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI*.

<table>
<thead>
<tr>
<th>Year</th>
<th>NOB</th>
<th>Mean Cash comp.</th>
<th>Mean Cash ratio</th>
<th>Mean Equity comp.</th>
<th>Mean Equity ratio</th>
<th>Mean Total comp.</th>
<th>Change in total comp. from t-1</th>
<th>Median Cash comp.</th>
<th>Median Cash ratio</th>
<th>Median Equity comp.</th>
<th>Median Equity ratio</th>
<th>Median Total comp.</th>
<th>Change in total comp. from t-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>8,695</td>
<td>841,959</td>
<td>79.6%</td>
<td>205,624</td>
<td>19.4%</td>
<td>1,057,194</td>
<td>431,336</td>
<td>87.1%</td>
<td>64,124</td>
<td>12.9%</td>
<td>495,460</td>
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<td></td>
</tr>
<tr>
<td>2001</td>
<td>705</td>
<td>708,990</td>
<td>91.0%</td>
<td>67,362</td>
<td>8.6%</td>
<td>779,125</td>
<td>360,897</td>
<td>93.6%</td>
<td>24,624</td>
<td>6.4%</td>
<td>385,521</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>730</td>
<td>777,724</td>
<td>88.4%</td>
<td>101,829</td>
<td>11.6%</td>
<td>879,910</td>
<td>380,813</td>
<td>96.5%</td>
<td>13,653</td>
<td>3.5%</td>
<td>394,466</td>
<td>2.3%</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>761</td>
<td>785,292</td>
<td>88.0%</td>
<td>103,248</td>
<td>11.6%</td>
<td>891,901</td>
<td>388,034</td>
<td>90.8%</td>
<td>39,447</td>
<td>9.2%</td>
<td>427,481</td>
<td>8.4%</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>828</td>
<td>853,328</td>
<td>86.9%</td>
<td>128,417</td>
<td>13.1%</td>
<td>981,979</td>
<td>390,915</td>
<td>89.8%</td>
<td>44,178</td>
<td>10.2%</td>
<td>435,093</td>
<td>1.8%</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>873</td>
<td>811,917</td>
<td>81.8%</td>
<td>178,784</td>
<td>18.0%</td>
<td>992,419</td>
<td>400,554</td>
<td>85.6%</td>
<td>67,387</td>
<td>14.4%</td>
<td>467,942</td>
<td>7.5%</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>901</td>
<td>896,463</td>
<td>80.2%</td>
<td>212,868</td>
<td>19.0%</td>
<td>1,117,935</td>
<td>436,030</td>
<td>86.3%</td>
<td>69,279</td>
<td>13.7%</td>
<td>505,310</td>
<td>8.0%</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>917</td>
<td>916,508</td>
<td>73.7%</td>
<td>319,086</td>
<td>25.7%</td>
<td>1,243,646</td>
<td>453,250</td>
<td>79.8%</td>
<td>114,507</td>
<td>20.2%</td>
<td>567,757</td>
<td>12.4%</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>851</td>
<td>880,831</td>
<td>73.5%</td>
<td>291,459</td>
<td>24.3%</td>
<td>1,199,079</td>
<td>464,541</td>
<td>79.9%</td>
<td>117,178</td>
<td>20.1%</td>
<td>581,719</td>
<td>2.5%</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>799</td>
<td>837,951</td>
<td>76.0%</td>
<td>259,882</td>
<td>23.6%</td>
<td>1,102,434</td>
<td>470,897</td>
<td>86.2%</td>
<td>75,577</td>
<td>13.8%</td>
<td>546,474</td>
<td>-6.1%</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>776</td>
<td>869,633</td>
<td>73.3%</td>
<td>299,128</td>
<td>25.2%</td>
<td>1,188,669</td>
<td>504,444</td>
<td>85.1%</td>
<td>88,082</td>
<td>14.9%</td>
<td>592,526</td>
<td>8.4%</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>554</td>
<td>899,264</td>
<td>74.0%</td>
<td>275,994</td>
<td>22.7%</td>
<td>1,214,748</td>
<td>531,833</td>
<td>83.3%</td>
<td>106,414</td>
<td>16.7%</td>
<td>638,247</td>
<td>7.7%</td>
<td></td>
</tr>
</tbody>
</table>

*Small differences between total compensation and the sum of cash compensation and equity compensation are caused by small amounts of other compensation.
Table 2: Mean and median CEO compensation for top 100 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI*.

<table>
<thead>
<tr>
<th>Year</th>
<th>NOB</th>
<th>Cash comp.</th>
<th>Cash ratio</th>
<th>Equity comp.</th>
<th>Equity ratio</th>
<th>Total comp.</th>
<th>Change in total comp. from t-1</th>
<th>Cash comp.</th>
<th>Cash ratio</th>
<th>Equity comp.</th>
<th>Equity ratio</th>
<th>Total comp.</th>
<th>Change in total comp. from t-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Years</td>
<td>1100</td>
<td>2,915,276</td>
<td>76.9%</td>
<td>821,758</td>
<td>21.7%</td>
<td>3,790,595</td>
<td></td>
<td>2,256,678</td>
<td>77.1%</td>
<td>670,699</td>
<td>22.9%</td>
<td>2,927,377</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>100</td>
<td>2,270,735</td>
<td>91.3%</td>
<td>215,292</td>
<td>8.7%</td>
<td>2,486,027</td>
<td></td>
<td>1,701,154</td>
<td>95.0%</td>
<td>89,595</td>
<td>5.0%</td>
<td>1,790,749</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>100</td>
<td>2,643,451</td>
<td>84.3%</td>
<td>488,173</td>
<td>15.6%</td>
<td>3,134,235</td>
<td>26.1%</td>
<td>1,886,975</td>
<td>82.7%</td>
<td>394,915</td>
<td>17.3%</td>
<td>2,281,890</td>
<td>27.4%</td>
</tr>
<tr>
<td>2003</td>
<td>100</td>
<td>2,698,572</td>
<td>82.7%</td>
<td>539,787</td>
<td>16.5%</td>
<td>3,263,805</td>
<td>4.1%</td>
<td>1,952,863</td>
<td>81.0%</td>
<td>457,727</td>
<td>19.0%</td>
<td>2,410,590</td>
<td>5.6%</td>
</tr>
<tr>
<td>2004</td>
<td>100</td>
<td>3,476,517</td>
<td>86.3%</td>
<td>550,118</td>
<td>13.7%</td>
<td>4,027,605</td>
<td>23.4%</td>
<td>2,638,017</td>
<td>83.2%</td>
<td>531,761</td>
<td>16.8%</td>
<td>3,169,779</td>
<td>31.5%</td>
</tr>
<tr>
<td>2005</td>
<td>100</td>
<td>3,283,388</td>
<td>80.2%</td>
<td>802,430</td>
<td>19.6%</td>
<td>4,093,069</td>
<td>1.6%</td>
<td>2,458,269</td>
<td>80.6%</td>
<td>592,087</td>
<td>19.4%</td>
<td>3,050,356</td>
<td>-3.8%</td>
</tr>
<tr>
<td>2006</td>
<td>100</td>
<td>3,359,002</td>
<td>78.6%</td>
<td>850,066</td>
<td>19.9%</td>
<td>4,271,693</td>
<td>4.4%</td>
<td>2,704,080</td>
<td>80.3%</td>
<td>661,951</td>
<td>19.7%</td>
<td>3,366,031</td>
<td>10.3%</td>
</tr>
<tr>
<td>2007</td>
<td>100</td>
<td>3,625,094</td>
<td>70.1%</td>
<td>1,480,659</td>
<td>28.6%</td>
<td>5,169,917</td>
<td>21.0%</td>
<td>2,992,131</td>
<td>76.8%</td>
<td>905,879</td>
<td>23.2%</td>
<td>3,898,010</td>
<td>15.8%</td>
</tr>
<tr>
<td>2008</td>
<td>100</td>
<td>3,105,145</td>
<td>72.0%</td>
<td>1,028,918</td>
<td>23.9%</td>
<td>4,310,285</td>
<td>-16.6%</td>
<td>2,483,002</td>
<td>73.7%</td>
<td>887,371</td>
<td>26.3%</td>
<td>3,370,373</td>
<td>-13.5%</td>
</tr>
<tr>
<td>2009</td>
<td>100</td>
<td>2,721,595</td>
<td>70.7%</td>
<td>1,114,123</td>
<td>28.9%</td>
<td>3,848,902</td>
<td>-10.7%</td>
<td>2,251,938</td>
<td>69.9%</td>
<td>969,237</td>
<td>30.1%</td>
<td>3,221,175</td>
<td>-4.4%</td>
</tr>
<tr>
<td>2010</td>
<td>100</td>
<td>2,644,426</td>
<td>67.2%</td>
<td>1,200,070</td>
<td>30.5%</td>
<td>3,932,677</td>
<td>2.2%</td>
<td>2,262,329</td>
<td>77.4%</td>
<td>660,982</td>
<td>22.6%</td>
<td>2,923,311</td>
<td>-9.2%</td>
</tr>
<tr>
<td>2011</td>
<td>100</td>
<td>2,240,107</td>
<td>70.9%</td>
<td>769,703</td>
<td>24.4%</td>
<td>3,158,326</td>
<td>-19.7%</td>
<td>1,765,239</td>
<td>71.1%</td>
<td>715,927</td>
<td>28.9%</td>
<td>2,481,166</td>
<td>-15.1%</td>
</tr>
</tbody>
</table>

*Small differences between total compensation and the sum of cash compensation and equity compensation are caused by small amounts of other compensation.
Table 3: Mean and median CEO compensation for Top 200 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI*.

<table>
<thead>
<tr>
<th>Year</th>
<th>NOB</th>
<th>Mean Cash comp.</th>
<th>Mean Cash ratio</th>
<th>Mean Equity comp.</th>
<th>Mean Equity ratio</th>
<th>Mean Total comp.</th>
<th>Change in total comp. from t-1</th>
<th>Median Cash comp.</th>
<th>Median Cash ratio</th>
<th>Median Equity comp.</th>
<th>Median Equity ratio</th>
<th>Median Total comp.</th>
<th>Change in total comp. from t-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>2200</td>
<td>2,043,586</td>
<td>77.8%</td>
<td>551,338</td>
<td>21.0%</td>
<td>2,626,815</td>
<td></td>
<td>1,376,972</td>
<td>83.3%</td>
<td>275,107</td>
<td>16.7%</td>
<td>1,652,079</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>200</td>
<td>1,580,773</td>
<td>89.1%</td>
<td>186,479</td>
<td>10.5%</td>
<td>1,773,963</td>
<td></td>
<td>994,139</td>
<td>92.0%</td>
<td>86,777</td>
<td>8.0%</td>
<td>1,080,916</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>200</td>
<td>1,798,479</td>
<td>86.1%</td>
<td>288,470</td>
<td>13.8%</td>
<td>2,088,255</td>
<td></td>
<td>1,054,038</td>
<td>89.9%</td>
<td>119,018</td>
<td>10.1%</td>
<td>1,173,056</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>200</td>
<td>1,897,389</td>
<td>85.1%</td>
<td>319,185</td>
<td>14.3%</td>
<td>2,229,364</td>
<td></td>
<td>1,149,491</td>
<td>88.0%</td>
<td>156,022</td>
<td>12.0%</td>
<td>1,305,513</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>200</td>
<td>2,329,319</td>
<td>86.8%</td>
<td>354,126</td>
<td>13.2%</td>
<td>2,684,013</td>
<td></td>
<td>1,503,453</td>
<td>91.0%</td>
<td>149,494</td>
<td>9.0%</td>
<td>1,652,948</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>200</td>
<td>2,182,781</td>
<td>80.5%</td>
<td>522,130</td>
<td>19.3%</td>
<td>2,711,415</td>
<td></td>
<td>1,552,730</td>
<td>87.9%</td>
<td>213,183</td>
<td>12.1%</td>
<td>1,765,913</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>200</td>
<td>2,457,655</td>
<td>78.8%</td>
<td>629,078</td>
<td>20.2%</td>
<td>3,119,603</td>
<td></td>
<td>1,731,568</td>
<td>81.9%</td>
<td>382,205</td>
<td>18.1%</td>
<td>2,113,774</td>
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</tr>
<tr>
<td>2007</td>
<td>200</td>
<td>2,496,019</td>
<td>70.8%</td>
<td>993,741</td>
<td>28.2%</td>
<td>3,525,801</td>
<td></td>
<td>1,659,765</td>
<td>71.6%</td>
<td>659,733</td>
<td>28.4%</td>
<td>2,319,498</td>
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</tr>
<tr>
<td>2008</td>
<td>200</td>
<td>2,223,269</td>
<td>72.4%</td>
<td>746,465</td>
<td>24.3%</td>
<td>3,072,132</td>
<td></td>
<td>1,545,705</td>
<td>77.2%</td>
<td>456,829</td>
<td>22.8%</td>
<td>2,002,533</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>200</td>
<td>1,899,436</td>
<td>72.1%</td>
<td>724,740</td>
<td>27.5%</td>
<td>2,633,861</td>
<td></td>
<td>1,315,077</td>
<td>82.8%</td>
<td>272,525</td>
<td>17.2%</td>
<td>1,587,602</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>200</td>
<td>2,017,923</td>
<td>70.7%</td>
<td>783,655</td>
<td>27.4%</td>
<td>2,855,671</td>
<td></td>
<td>1,391,191</td>
<td>71.5%</td>
<td>553,617</td>
<td>28.5%</td>
<td>1,944,807</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>200</td>
<td>1,596,402</td>
<td>72.5%</td>
<td>516,656</td>
<td>23.5%</td>
<td>2,200,886</td>
<td></td>
<td>1,231,764</td>
<td>79.6%</td>
<td>314,798</td>
<td>20.4%</td>
<td>1,546,563</td>
<td></td>
</tr>
</tbody>
</table>

*Small differences between total compensation and the sum of cash compensation and equity compensation are caused by small amounts of other compensation.
Table 4: Mean and median CEO compensation for Top 300 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI*.

<table>
<thead>
<tr>
<th>Year</th>
<th>NOB</th>
<th>Mean Cash comp.</th>
<th>Mean Cash ratio</th>
<th>Mean Equity comp.</th>
<th>Mean Equity ratio</th>
<th>Mean Total comp.</th>
<th>Change in total comp. from t-1</th>
<th>Median Cash comp.</th>
<th>Median Cash ratio</th>
<th>Median Equity comp.</th>
<th>Median Equity ratio</th>
<th>Median Total comp.</th>
<th>Change in total comp. from t-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Years</td>
<td>3300</td>
<td>1,601,074</td>
<td>78.1%</td>
<td>424,702</td>
<td>20.7%</td>
<td>2,048,821</td>
<td>934,790</td>
<td>81.2%</td>
<td>216,289</td>
<td>18.8%</td>
<td>1,151,079</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>300</td>
<td>1,242,557</td>
<td>89.6%</td>
<td>139,723</td>
<td>10.1%</td>
<td>1,387,154</td>
<td>698,355</td>
<td>89.5%</td>
<td>81,825</td>
<td>10.5%</td>
<td>780,180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>300</td>
<td>1,407,988</td>
<td>86.3%</td>
<td>223,358</td>
<td>13.7%</td>
<td>1,632,216</td>
<td>766,319</td>
<td>92.4%</td>
<td>62,705</td>
<td>7.6%</td>
<td>829,023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>300</td>
<td>1,490,500</td>
<td>86.4%</td>
<td>226,984</td>
<td>13.2%</td>
<td>1,726,010</td>
<td>888,456</td>
<td>90.7%</td>
<td>90,691</td>
<td>9.3%</td>
<td>979,147</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>300</td>
<td>1,770,932</td>
<td>86.4%</td>
<td>279,051</td>
<td>13.6%</td>
<td>2,050,362</td>
<td>1,024,519</td>
<td>85.1%</td>
<td>178,983</td>
<td>14.9%</td>
<td>1,203,502</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>300</td>
<td>1,674,231</td>
<td>81.1%</td>
<td>386,731</td>
<td>18.7%</td>
<td>2,065,962</td>
<td>991,424</td>
<td>81.0%</td>
<td>232,763</td>
<td>19.0%</td>
<td>1,224,187</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>300</td>
<td>1,930,565</td>
<td>79.1%</td>
<td>485,385</td>
<td>19.9%</td>
<td>2,439,852</td>
<td>1,122,907</td>
<td>75.2%</td>
<td>370,149</td>
<td>24.8%</td>
<td>1,493,056</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>300</td>
<td>1,951,285</td>
<td>71.6%</td>
<td>748,054</td>
<td>27.5%</td>
<td>2,723,391</td>
<td>1,135,342</td>
<td>71.6%</td>
<td>450,589</td>
<td>28.4%</td>
<td>1,585,930</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>300</td>
<td>1,734,561</td>
<td>73.0%</td>
<td>569,363</td>
<td>24.0%</td>
<td>2,376,984</td>
<td>998,180</td>
<td>72.0%</td>
<td>387,633</td>
<td>28.0%</td>
<td>1,385,813</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>300</td>
<td>1,538,960</td>
<td>72.8%</td>
<td>567,179</td>
<td>26.8%</td>
<td>2,114,287</td>
<td>966,593</td>
<td>80.7%</td>
<td>230,597</td>
<td>19.3%</td>
<td>1,197,190</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>300</td>
<td>1,597,632</td>
<td>70.2%</td>
<td>639,629</td>
<td>28.1%</td>
<td>2,276,840</td>
<td>1,023,951</td>
<td>78.3%</td>
<td>283,858</td>
<td>21.7%</td>
<td>1,307,808</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>300</td>
<td>1,272,607</td>
<td>72.9%</td>
<td>406,262</td>
<td>23.3%</td>
<td>1,744,639</td>
<td>836,582</td>
<td>69.9%</td>
<td>359,877</td>
<td>30.1%</td>
<td>1,196,459</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Small differences between total compensation and the sum of cash compensation and equity compensation are caused by small amounts of other compensation.
Table 5: Mean and median CEO compensation for Top 101-300 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI*.

| Year | NOB | Mean | | | | Median | | | | |
|------|-----|------|--------|-------|--------|-------|--------|-------|--------|
|      |     | Cash comp. | Cash ratio | Equity comp. | Equity ratio | Total comp. | Change in total comp. from t-1 | Cash comp. | Cash ratio | Equity comp. | Equity ratio | Total comp. | Change in total comp. from t-1 |
| All Years | 2200 | 943,974 | 80.1% | 226,174 | 19.2% | 1,177,934 | 710,449 | 83.1% | 144,459 | 16.9% | 854,908 |
| 2001 | 200 | 728,468 | 87.0% | 101,939 | 12.2% | 837,717 | 590,157 | 94.5% | 34,434 | 5.5% | 624,591 |
| 2002 | 200 | 790,256 | 89.7% | 90,950 | 10.3% | 881,206 | 625,100 | 93.6% | 43,016 | 6.4% | 668,116 |
| 2003 | 200 | 886,464 | 92.6% | 70,582 | 7.4% | 957,113 | 667,551 | 89.0% | 82,398 | 11.0% | 749,948 |
| 2004 | 200 | 918,140 | 86.5% | 143,518 | 13.5% | 1,061,740 | 748,253 | 89.6% | 86,971 | 10.4% | 835,224 |
| 2005 | 200 | 869,652 | 82.7% | 178,882 | 17.0% | 1,051,413 | 727,596 | 85.5% | 123,730 | 14.5% | 851,326 |
| 2006 | 200 | 1,216,347 | 79.8% | 303,044 | 19.9% | 1,523,931 | 853,071 | 78.5% | 233,462 | 21.5% | 1,086,533 |
| 2007 | 200 | 1,114,381 | 74.3% | 381,752 | 25.4% | 1,500,127 | 774,298 | 69.5% | 340,508 | 30.5% | 1,114,806 |
| 2008 | 200 | 1,049,269 | 74.4% | 339,586 | 24.1% | 1,410,334 | 730,475 | 74.3% | 252,492 | 25.7% | 982,967 |
| 2009 | 200 | 947,643 | 76.0% | 293,707 | 23.6% | 1,246,979 | 719,726 | 76.8% | 216,960 | 23.2% | 936,686 |
| 2010 | 200 | 1,074,236 | 74.1% | 359,408 | 24.8% | 1,448,922 | 789,305 | 78.1% | 221,862 | 21.9% | 1,011,166 |
| 2011 | 200 | 788,857 | 76.0% | 224,541 | 21.6% | 1,037,796 | 640,508 | 75.3% | 209,710 | 24.7% | 850,218 |

*Small differences between total compensation and the sum of cash compensation and equity compensation are caused by small amounts of other compensation.
Table 6: Mean and median CEO compensation for non-Top 300 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI*.

<table>
<thead>
<tr>
<th>Year</th>
<th>NOB</th>
<th>Mean Cash comp.</th>
<th>Mean Cash ratio</th>
<th>Mean Equity comp.</th>
<th>Mean Equity ratio</th>
<th>Mean Total comp.</th>
<th>Change in total comp. from t-1</th>
<th>Median Cash comp.</th>
<th>Median Cash ratio</th>
<th>Median Equity comp.</th>
<th>Median Equity ratio</th>
<th>Median Total comp.</th>
<th>Change in total comp. from t-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Years</td>
<td>5395</td>
<td>377,625</td>
<td>83.8%</td>
<td>71,619</td>
<td>15.9%</td>
<td>450,639</td>
<td></td>
<td>313,628</td>
<td>90.6%</td>
<td>32,594</td>
<td>9.4%</td>
<td>346,221</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>405</td>
<td>313,756</td>
<td>95.4%</td>
<td>13,762</td>
<td>4.2%</td>
<td>328,734</td>
<td></td>
<td>277,570</td>
<td>96.7%</td>
<td>9,409</td>
<td>3.3%</td>
<td>286,980</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>430</td>
<td>338,005</td>
<td>95.2%</td>
<td>17,041</td>
<td>4.8%</td>
<td>355,046</td>
<td>8.0%</td>
<td>269,307</td>
<td>97.3%</td>
<td>7,430</td>
<td>2.7%</td>
<td>276,737</td>
<td>-3.6%</td>
</tr>
<tr>
<td>2003</td>
<td>461</td>
<td>326,371</td>
<td>93.5%</td>
<td>22,725</td>
<td>6.5%</td>
<td>349,096</td>
<td>-1.7%</td>
<td>284,961</td>
<td>96.4%</td>
<td>10,567</td>
<td>3.6%</td>
<td>295,528</td>
<td>6.8%</td>
</tr>
<tr>
<td>2004</td>
<td>528</td>
<td>331,963</td>
<td>88.5%</td>
<td>42,830</td>
<td>11.4%</td>
<td>374,943</td>
<td>7.4%</td>
<td>277,013</td>
<td>94.5%</td>
<td>16,129</td>
<td>5.5%</td>
<td>293,142</td>
<td>-0.8%</td>
</tr>
<tr>
<td>2005</td>
<td>573</td>
<td>360,444</td>
<td>83.7%</td>
<td>69,911</td>
<td>16.2%</td>
<td>430,702</td>
<td>14.9%</td>
<td>306,093</td>
<td>91.3%</td>
<td>29,329</td>
<td>8.7%</td>
<td>335,423</td>
<td>14.4%</td>
</tr>
<tr>
<td>2006</td>
<td>601</td>
<td>380,272</td>
<td>83.1%</td>
<td>76,836</td>
<td>16.8%</td>
<td>457,953</td>
<td>6.2%</td>
<td>332,873</td>
<td>88.3%</td>
<td>44,061</td>
<td>11.7%</td>
<td>376,934</td>
<td>12.4%</td>
</tr>
<tr>
<td>2007</td>
<td>617</td>
<td>413,375</td>
<td>78.9%</td>
<td>110,511</td>
<td>21.1%</td>
<td>524,355</td>
<td>14.6%</td>
<td>338,271</td>
<td>81.9%</td>
<td>74,802</td>
<td>18.1%</td>
<td>413,073</td>
<td>9.6%</td>
</tr>
<tr>
<td>2008</td>
<td>551</td>
<td>416,005</td>
<td>74.6%</td>
<td>140,150</td>
<td>25.1%</td>
<td>557,951</td>
<td>6.4%</td>
<td>356,987</td>
<td>88.8%</td>
<td>45,091</td>
<td>11.2%</td>
<td>402,078</td>
<td>-2.7%</td>
</tr>
<tr>
<td>2009</td>
<td>499</td>
<td>416,503</td>
<td>84.3%</td>
<td>75,134</td>
<td>15.2%</td>
<td>494,106</td>
<td>-11.4%</td>
<td>351,991</td>
<td>89.3%</td>
<td>41,999</td>
<td>10.7%</td>
<td>393,990</td>
<td>-2.0%</td>
</tr>
<tr>
<td>2010</td>
<td>476</td>
<td>410,810</td>
<td>82.2%</td>
<td>84,526</td>
<td>16.9%</td>
<td>499,913</td>
<td>1.2%</td>
<td>343,978</td>
<td>85.1%</td>
<td>60,074</td>
<td>14.9%</td>
<td>404,052</td>
<td>2.6%</td>
</tr>
<tr>
<td>2011</td>
<td>254</td>
<td>458,308</td>
<td>77.8%</td>
<td>122,135</td>
<td>20.7%</td>
<td>588,892</td>
<td>17.8%</td>
<td>352,603</td>
<td>89.8%</td>
<td>40,152</td>
<td>10.2%</td>
<td>392,755</td>
<td>-2.8%</td>
</tr>
</tbody>
</table>

*Small differences between total compensation and the sum of cash compensation and equity compensation are caused by small amounts of other compensation.
Figure 1. Mean and median CEO compensation for all firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI.
Figure 2. Mean and median CEO compensation for Top 100 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI.
Figure 3. Mean and median CEO compensation for Top 200 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI.
Figure 4. Mean and median CEO compensation for Top 300 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI.
Figure 3. Mean and median CEO compensation for Top 101-300 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI.
Figure 6. Mean and median CEO compensation for Non Top 300 firms included in the Sirca Limited corporate governance database for 2001 to 2011, where all dollar values are adjusted to December 2011 dollars using the Australian CPI.
Table 7. Sharemarket estimates of shareholder wealth creation of four ASX listed companies during the tenure of their current or former CEO estimated using the Franked and Unfranked Returns of the company and the (i) CAPM (ii) the Market Model and (iii) the zero-one version of the Market Model.

<table>
<thead>
<tr>
<th>Company and CEO</th>
<th>BHP Billiton Marius Kloppers</th>
<th>Telstra David Thodey</th>
<th>Fairfax Media Gregory Hywood</th>
<th>Newcrest Mining Greg Robinson</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated Alpha</td>
<td>0.0014</td>
<td>0.0102</td>
<td>-0.0299</td>
<td>-0.0348</td>
</tr>
<tr>
<td>t-statistic ($\alpha=0$)</td>
<td>0.1438</td>
<td>1.5928*</td>
<td>-1.6908*</td>
<td>-1.8305**</td>
</tr>
<tr>
<td>Estimated Beta</td>
<td>1.2831</td>
<td>0.1083</td>
<td>1.0909</td>
<td>0.8446</td>
</tr>
<tr>
<td>t-statistic ($\beta=1$)</td>
<td>1.3741</td>
<td>-5.2153***</td>
<td>0.1739</td>
<td>-0.3032</td>
</tr>
<tr>
<td><strong>CAPM (Franking)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated Alpha</td>
<td>0.0024</td>
<td>0.0130</td>
<td>-0.0297</td>
<td>-0.0358</td>
</tr>
<tr>
<td>t-statistic ($\alpha=0$)</td>
<td>0.2473</td>
<td>2.0683**</td>
<td>-1.6693*</td>
<td>-1.8841**</td>
</tr>
<tr>
<td>Estimated Beta</td>
<td>1.2812</td>
<td>0.1175</td>
<td>1.1144</td>
<td>0.8706</td>
</tr>
<tr>
<td>t-statistic ($\beta=1$)</td>
<td>1.3690</td>
<td>-5.2892***</td>
<td>0.2166</td>
<td>-0.2511</td>
</tr>
<tr>
<td><strong>Market Model</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated Alpha</td>
<td>0.0004</td>
<td>0.0131</td>
<td>-0.0302</td>
<td>-0.0344</td>
</tr>
<tr>
<td>t-statistic ($\alpha=0$)</td>
<td>0.0391</td>
<td>2.0106**</td>
<td>-1.6864*</td>
<td>-1.7920**</td>
</tr>
<tr>
<td>Estimated Beta</td>
<td>1.2907</td>
<td>0.1018</td>
<td>1.0836</td>
<td>0.8484</td>
</tr>
<tr>
<td>t-statistic ($\beta=1$)</td>
<td>1.4005</td>
<td>-5.2298***</td>
<td>0.1593</td>
<td>-0.2943</td>
</tr>
<tr>
<td><strong>Market Model (Franking)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated Alpha</td>
<td>0.0001</td>
<td>0.0159</td>
<td>-0.0300</td>
<td>-0.0355</td>
</tr>
<tr>
<td>t-statistic ($\alpha=0$)</td>
<td>0.0077</td>
<td>2.4786***</td>
<td>-1.6637*</td>
<td>-1.8449**</td>
</tr>
<tr>
<td>Estimated Beta</td>
<td>1.2864</td>
<td>0.1111</td>
<td>1.1072</td>
<td>0.8747</td>
</tr>
<tr>
<td>t-statistic ($\beta=1$)</td>
<td>1.3814</td>
<td>-5.3030***</td>
<td>0.2020</td>
<td>-0.2418</td>
</tr>
<tr>
<td><strong>Zero-One Market Model</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Average Excess Return</td>
<td>0.0003</td>
<td>0.0043</td>
<td>-0.0297</td>
<td>-0.0352</td>
</tr>
<tr>
<td><strong>Zero-One Market Model (Franking)</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Average Excess Return</td>
<td>0.0003</td>
<td>0.0062</td>
<td>-0.0293</td>
<td>-0.0363</td>
</tr>
</tbody>
</table>

* significant at 10 per cent; ** significant at 5 per cent; *** significant at 1 per cent
REFERENCES


