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Chief Executive Pay and Remuneration Committee Independence[*]

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Abstract

This paper tests the impact of remuneration committee independence on Chief Executive (CEO) pay. FTSE350 companies between 1996 and 2008 are used to assess whether remuneration committees facilitate optimal contracting or whether CEOs capture the pay-setting process and inflate their own remuneration. This panel has a number of advantages over prior samples and, in particular, contains a more comprehensive assessment of non-executive directors' independence. No evidence of a relationship between CEO pay and director independence is found, challenging the theory of managerial power and the received wisdom of institutional guidance.

JEL Classification numbers: G30, J30. Key Words: CEO Compensation, Corporate Governance, Managerial Power, Board Capture

Word Count: 6454

I.   Introduction

There is widespread concern that the CEO pay-setting process is broken. With the onset of spectacular corporate failures, particularly in the financial services industry where aggressive bonus schemes are commonplace, the public disquiet with executive remuneration has reached new heights[1]. Yet, orthodox economic theory (optimal contracting) posits that CEO pay is set by the board on behalf of shareholders, attracting and motivating directors of the desired calibre without paying more than is

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[1]Public outrage became violent when the house of Sir Fred Goodwin, the former CEO of Royal Bank of Scotland (RBS), was attacked after it emerged RBS posted a record loss of £40,667m and Sir Fred would receive a pension of £700,000 per annum. This was later reduced to a lump sum of £2.8m and £342,500 per annum.

necessary (Holmstrom 1979, Prendergast 1999). In light of recent events[2] alternative theories of pay determination warrant examination.

Lucian Bebchuk has developed a theory (referred to here as managerial power[3]) that is consistent with the popular perception of executive remuneration (Bebchuk *et al.* 2002; Bebchuk & Fried, 2003, 2004). Following earlier work by Kay & Silberston (1995), and Bertrand & Mullainathan (2001), Bebchuk and his co-authors have documented a broken system producing inefficient, ineffective and extremely generous compensation arrangements. Their central tenet is that the system is broken because of unresolved agency problems which stem from powerful managers who are able to capture the pay-setting process. Thus, the CEO effectively sets their own pay constrained only by an aversion to the outrage their contract generates.

Regulators are aware of the potential conflict of interest. In the UK, best practice initiatives since the Cadbury Report (1992) have sought to limit executive influence over the pay-setting process and strengthen the role of non-executive directors (Greenbury 1995; Higgs 2003; Combined Code 2009). In particular, members serving on the remuneration committee, the sub-committee of the board that determines CEO pay, are supposed to be *independent* in character and judgement so that they are able to resist capture by the CEO and curtail inflated pay outcomes[4]. The recent Walker review (2009) revisits the idea that a lack of remuneration committee independence contributed to failings in the financial service sector. An empirical investigation of the impact of independence on CEO pay is very timely for policymakers.

The optimal contracting model predicts that CEO pay will not vary in any consistent direction with the level of independence in the pay-setting process (Core *et al.* 1999). It is not that the composition of the board is irrelevant, only that shareholders control elections to the board and the remuneration committee who will produce the optimal contract. In direct contrast, the managerial power hypothesis implies the more influence the CEO has over the remuneration committee, the more they will distort their pay above the optimal level. Thus a truly independent remuneration committee is vital to avoid inflated pay outcomes under the managerial power hypothesis, but not of central concern under standard contracting theory.

In contrast to the voluminous coverage in the business press[5] the impact of independence on pay negotiations been subject to little formal empirical investigation. There is not consensus on the simple question of whether more independence diminishes CEO excess. Prior work has been hindered by limited data arising from incomplete and opaque company disclosures. Even as companies have become more

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[2]For example, the apparent disconnect between shareholder returns and CEO pay in high profile companies such as RBS, Shell and Bellway and the possibility that bonuses arrangements might actually have contributed to the present financial crisis by generating myopic incentives and encouraging excessive risk taking (Treasury Committee 2009), see http://blog.manifest.co.uk/.

[3]Also known as rent extraction, or board capture theory.

[4]Such provisions do not form part of UK company law. Rather, the adopted approach is one of "comply or explain"; that is companies quoted on the London Stock Exchange are required by law to either comply with the provisions or disclose any non-compliance to shareholders. See Solomon (2007) for a review.

[5]See for example Guardian Special Reports.

forthcoming with their disclosures[6] prior studies have lacked a comprehensive impartial measure of independence. This paper exploits a dataset with several novel elements including an objective independence assessment covering 40,455 director-years. The sample permits detailed scrutiny of the notion of independence and its impact on CEO pay by identifying individual CEOs with full remuneration data and precise service dates. This enables the estimation of a dynamic pay equation that controls for unobservable individual effects. No evidence of an independence effect is found, presenting a challenge to the managerial power perspective. This result is robust to several econometric specifications.

II.   Theoretical background

The economics of executive remuneration contracts are normally understood in the context of a principal-agent relationship whereby the manager experiences different incentives to the owner (Jensen & Meckling 1976). As some actions of the manager are hidden from the principal (the moral hazard problem), the manager might pursue an agenda at the owner's expense without incurring punishment from the owner (Holmstrom 1979). Further, the managerial agenda is unlikely to be in the public interest, whereas the optimisation of shareholder value is the basis upon which resources are allocated efficiently within a market economy (Tirole 2001, Weisbach 2007). The remuneration contract might alleviate these problems by realigning the incentives of the agent with those of the principal (Jensen & Murphy 1990, Conyon & Kuchinskas 2006). In the UK, this is achieved through a mixture of cash bonuses, share options and other equity based incentives, which tie the agent's reward to the performance of the company. Thus, even where imperfect monitoring and moral hazard prevail, a positive correlation between CEO pay and firm performance is expected to be observed.

Measuring the magnitude of the pay-performance correlation has been the industry standard for testing the ability of remuneration contracts to respond to agency concerns. Early empirical work[7] failed to find strong evidence of a pay response to performance (Jensen & Murphy 1990), whereas studies conducted post the increase in stock-based compensation of the 1980s find a much stronger relationship (Hall & Liebman 1998). This trend has continued over the last ten years with the variable component of pay now forming the majority of the total compensation package (PricewaterhouseCoopers 2009). The other established determinant of CEO pay is company size. Tosi *et al.* (2000) perform a meta-analysis with 137 papers on CEO pay and conclude that firm size accounts for more than 40% of the variance in total CEO pay while firm performance accounts for less than 5% of the variance. Rosen (1981) articulates a marginal productivity narrative whereby the best CEOs are sorted into the largest companies so that their superior talent generates the greatest impact on firm value. Equally, the cost of poor executive decisions increase as the

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[6]Due to pressure from best practice in the 1990s and formal disclosures rules post 2002.

[7]The empirical literature on pay-performance sensitivity is vast and a full review is not attempted here. US surveys are provided by Murphy (1999), Gomez-Mejia & Wiseman (1997), Prendergast (1999), and Jensen *et al.* (2004); while Bruce & Buck (2005) provide a review of the UK literature.

company increases in size (Conyon & Leech 1994). Thus even small differences in human capital can translate to very large differences in pay because of large differences in firm size. Consistent with this view, Gabaix & Landier (2008) present evidence that the 600% increase in CEO pay in US firms between 1980 and 2003 can be explained by the 600% increase in firm size.

Yet the managerial power perspective argues that incentive compensation, far from being the solution to the agency problem, is a product of an unresolved agency problem within the pay-setting process. This perspective focuses investigation on the relationships between the CEO and the other directors sitting on the board. CEOs are accused of inflating their own pay through their dominance of the pay-setting process. There have long been concerns that CEO pay outcomes may reflect an element of discretionary power. For example, the pay-size relationship might be a product of the desire of CEOs to grow the firm beyond its optimal size in order to extract the pecuniary and non-pecuniary benefits associated with larger firms (Cosh 1975). However, the managerial power model goes further, arguing that hidden actions extend to the manipulation of the board enabling the CEO to effectively set their own pay.

The CEO can control the pay-setting process, by controlling nominations to the board, through which the CEO appoints sympathetic like-minded individuals and removes any trouble-makers[8]. These captured directors are more interested in advancing the CEO's agenda than safeguarding the interests of shareholders. Bebchuk *et al.* (2002) argue this is likely to be most keenly observed in the outcome of CEO pay negotiations, where inflated and ineffective compensation arrangements are, in their view, commonplace. With the CEO firmly in control of their own compensation, the CEO will inflate their pay until outrage from shareholders and business pundits force some moderation.

The managerial power theory has stimulated a lively debate. The defence of the traditional theories of CEO pay have not focused on reasserting the integrity and independence of the CEO pay setting process; there is broad agreement that deviations from "arms-length" bargaining are likely. Yet several scholars continue to prefer the optimal contracting model (or some variant of it), believing it to be a more consistent with the known empirical evidence. For example, Murphy (2002) argues that CEO pay escalated during a period which saw the introduction of corporate governance reforms, including more independent boards. At a time when managerial influence should have been declining, CEO pay was accelerating. The sample used here shares this feature. Similarly, Thomas (2004) points to the growth in the pay gap between CEO earnings in the US and elsewhere, during a time when the corporate governance regime was tightening relative to the rest of the world. Market forces seem a more natural interpretation of these trends than managerial power, a position which Hubbard (2005) also advances. Core *et al.* (2004) argue that remuneration contracts are specifically designed to limit the costs of managerial power, principally by tying reward to firm performance with stock options. This returns CEO pay outcomes towards those predicted by the optimal contracting model.

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[8]There are clear analogies here with the paranoid dictator of an autocratic regime. Indeed, Gompers, Ishii & Metrick (2003) contrast corporations where shareholders retain their democratic control rights with CEO dominated dictatorships.

Likewise, Holmstrom (2006) maintains that the CEO is unable to inflate their own remuneration far above the market rate as information pertaining to pay in other companies of a similar size is in the public domain and readily supplied by compensation consultants. Thus the practice of benchmarking circumnavigates awkward confrontation between the CEO and the remuneration committee as both parties defer to normal market practice. While there is an acknowledgement of Bebchuk *et al's.* anecdotal evidence linking overpayment relative to performance and managerial power (Weisbach (2007) in particular credits Bebchuk *et al's.* concept of camouflage as a persuasive description of poor company disclosures) these authors appear in in agreement that rigorous empirical evidence demonstrating that high pay is result of board capture is lacking.

The potential for a CEO dictatorship is anticipated by institutional guidance in the UK (ABI 2006). Through a series of corporate governance reforming efforts including establishing standards of 'best practice' (Combined Code 2009) and increased engagement from institutional shareholders (Myners 2004) companies have improved transparency in financial reporting and accountability within the board. With respect to board accountability the central reforming effort has been directed at strengthening the role and independence of non-executive directors (Higgs 2003). Institutional shareholders, corporate governance agencies and the companies themselves all focus their attention on the issue of independence, and independence in the remuneration committee is regarded as a key component in avoiding pay outcomes inflated in favour of the CEO. This is a departure from optimal contracting models where board capture is not a central concern. Indeed, a lack of independence amongst some members may actually facilitate more appropriate compensation decisions (Conyon & He 2004). For example, close working relationships with the executive management team might lead to a greater understanding of the pertinent issues facing the corporation. Therefore, while the independence of the directors is an important determinant of pay under the managerial power model it is unlikely to play a role under the optimal contracting model.

Prior empirical studies

Of the numerous of prior papers investigating executive remuneration, only a handful have given serious thought to the role of the non-executive director and the remuneration committee in the pay setting process[9]. These are summarised in table 1 which models the CEO pay-setting process as follows:

$$Remuneration_{ijt} = \gamma_i + \delta_j + \alpha_t + \beta(Insiders)_{ijt} + \lambda(Controls)_{ijt} + \mu_{ijt} \qquad (1)$$

where γ is an unidentified firm specific effect for firm i which does not vary over time, δ_j is a time-invariant unobserved effect specific to director j, α_t is a time trend, *Insiders* is a variable that measures CEO control of the pay-setting committee (such as % insiders on the remuneration committee), *Controls* is a vector of controls such

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[9]However, most of these papers did not focus on the impact of independence on the remuneration committee. Rather, these papers typically explored a related topic and controlled for board independence in their regressions.

as performance and firm size, and β and λ are the corresponding coefficients. $\beta = 0$ is consistent with optimal contracting; $\beta > 0$ is consistent with managerial power.

[TABLE 1 ABOUT HERE]

Table 1 shows there is a lack of consensus within the empirical literature as to the importance of the composition of the pay-setting committee in the determination of CEO pay. Some variation in results may arise from the use of different samples. However, the prior studies are not very different in their sample selection. They use large US or UK firms from the 1980s, 1990s and early 2000s and these results are not similar by decade, or by country, or by industry. Such a range of findings is disconcerting and suggestive of shortcomings in the econometric specifications of prior work. This study addresses a number of the potential concerns, including unobserved heterogeneity, endogenous variables such as prior period pay and the accurate measurement of directors' independence.

Studies that do not contain repeated observations of firms over time can not control for γ_i (Murphy 1985). However, in addition to firm fixed effects, it is likely that there are unobserved fixed effects associated with the individual directors in the sample. Some prior studies have used datasets which do not identify the individual and so have not controlled for δ_j[10]. This has been a particular problem for prior UK studies, as the disclosure regime permitted only the identification of the Highest Paid Director (HPD) (Main *et al.* 1996). However, the HPD does not even consistently identify the same position as the CEO is not necessarily the highest paid director on a pro-rata basis. In this respect, the data used here, which identifies every individual director's precise appointment and resignation date, offers a significant advantage over the existing literature. In order to purge both firm and individual fixed effects, a new variable is created that uniquely identifies the firm and the individual. The data is then sorted on this new variable and the fixed effects are eliminated in regression.

There is sufficient empirical evidence to suspect that directors' pay does not adjust immediately (Main *et al.* 1996; Conyon 1997; Daily *et al.* 1998; Conyon *et al.* 2000). Pay negotiations are typically conducted with reference to the existing package rather than entirely renegotiated every year. Consequently pay from a prior period is likely to be significant in the determination of current pay. With a lagged dependent variable, the use of standard fixed effects estimators will result in inconsistent estimates as the lagged dependent variable will be correlated with the error term (Nickell 1981, Wooldridge 2002, Cameron & Trivedi 2005). The Generalized Method of Moments (GMM) provides a framework for estimating equations with such endogenous variables. Instrumental variables that are related to the explanatory variable but not the error can be used to isolate the variation that is not correlated with the error. Such instruments are easy to obtain in panel data because the lagged values (beyond t-1) can be used. Arellano & Bond (1991) provide a first-difference estimator that uses lags of the lagged dependent variable as an instrument for prior period pay. Arellano & Bover (1995) and Blundell & Bond (1998) have enhanced the Arellano-Bond estimator to provide additional instruments. Lagged

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[10]Individual unobserved fixed effects might include the director's suitability for the specific job, their track record, or their access to a particular network. Should any of these omitted variables be correlated with the regressors then the estimated coefficients will not be consistent (Conyon *et al.* 2000).

levels might be weak instruments for first differences (Roodman 2006). Arellano & Bover (1995) show that, if the original equation in levels is added to the system, additional moment conditions can be used to increase efficiency. For instance, prior period pay can be instrumented with lags of its own first difference. The resulting estimator developed by Blundell & Bond (1998) is known as 'system GMM' (as opposed to the original 'differenced GMM'). The two-step version of the estimator is applied here, together with Windmeijer (2005) corrected standard errors. This is desirable as improvements in efficiency can be made with the two-step estimator (Arellano & Bond 1991). Studies have shown that the estimated asymptotic standard errors in finite samples are biased downwards and consequently Arellano & Bond (1991) do not recommend inference on the coefficients when the two-step estimator is used. However, Windmeijer (2005) has developed a correction so that inference using these corrected standard errors is appropriate.

III. Data

The dataset used in this study was acquired from Manifest Information Services Ltd and comprises all companies that entered the FTSE 350 Index with any financial year end between 31st December 1996 and 31st December 2008. To avoid survivorship bias, companies that drop out of the index prior to 2008 are covered until the company is wound up or taken private[11]. The period chosen is significant. The data covers a full economic cycle, with market growth until 2001, decline post 9/11 and .com crash and then recovery before the financial crisis. Moreover, the period under analysis is particularly interesting given the steady flow of corporate governance reforms designed to improve the transparency and accountability of boards and produce more efficient remuneration contracts.

Variable definitions

The dependent variable is the natural log of *CEO pay*. This captures the expected value of the CEO's remuneration package for the year, adjusted to December 2008 prices. This includes salary, perquisites, annual bonuses, special payments on recruitment or termination, and the value of deferred bonus awards, share options and equity incentives (LTIPs) at their grant date. The grant date value is calculated as one-third of face value. As the exact appointment and resignation date are identified for each individual, this study annualises all remuneration data based on the number of days the individual served in the year, subject to the individual serving at least three months. This represents a significant advantage over the prior UK literature, that was constrained to measuring the pay of an anonymous Highest Paid Director (HPD)[12].

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[11]Investment trusts that contained no executive directors were excluded from the sample, although self-managed investment trusts were retained. Certain data items such as the return index were obtained from Thomson Datastream.

[12]To determine a unique time-period for the purposes of constructing the panel, the year end of the reporting period was used. However, if a company changed its reporting year-end it is possible to have two reporting period ends in one calendar year. In these cases, the year series was adjusted

An important explanatory variable for the managerial power model is the composition of the remuneration committee. The Greenbury Report (1995) recommended that boards established a sub committee of the board, comprising solely non-executive directors to determine executive remuneration. The Combined Code has reinforced this recommendation suggesting that remuneration committees comprise exclusively *independent* non-executive directors. The Code gives a non-exhaustive list of potential factors that might compromise the independence of a non-executive directors character and judgement. Such factors include: familial or material business associations with members of the management; and length of service. The Code expects the board to state the independence of each director and to explain situations where they consider a director independent in light of such factors. Yet there is an obvious temptation for boards to declare their directors as independent even when such a diagnosis might be considered dubious. Studies that only record companies' statements on independence are therefore limited. However, this paper, uses Manifest's impartial and detailed assessments of independence in addition to the companies' own measure.

Manifest's assessment of independence is a stringent measure of independence. Over the full sample, more than 50% of companies asserted that all their non-executive directors are independent whereas Manifest regarded only 25% of companies as fully compliant. Manifest identifies whether or not the non-executive director is a former employee, has a material business relationship, family ties, is associated with a major shareholder, has a cross directorship or has served on the board for in excess of nine years. In the US literature three categories for directors appear: 'insider'; 'affiliated/grey'; and 'outsider'. Insiders are either employed by the firm, retired from the firm or immediate family members. Affiliated directors are those with a material business relationship with the firm. To aid comparability, going forward an executive director or a non-executive director who is not independent is classified as an 'insider'. Therefore, the primary variable under analysis is constructed as the percentage of insiders serving on the remuneration committee during the year. Another measure of interest is the composition of the whole board as the whole board remains the ultimate authority for the functioning of the company. Indeed, a captured board might placate shareholders by placing independent directors on the remuneration committee to legitimise inflated pay arrangements. Therefore, the percentage of insiders on the whole board will also be examined for any impact on CEO pay.

The log of annual sales turnover is included as a proxy for company size. To control for performance, total shareholder return (TSR) is used, as it is in the majority of UK studies. Following Conyon & Peck (1998), TSR equals the year change in the log of the annual return index supplied by Datastream. TSR represents gains or losses accruing from movement in the share price as well as paid dividends. The log of pre-tax profit is included as an accounting measure of performance. Where observations became undefined due to taking the log of negative profit, the log of profit was recoded as zero.

The agency literature regards ownership structure as a potentially important determinant of CEO pay (Hart 1995). Companies with concentrated ownership may

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manually to uniquely identify years.

substitute compensation in favour of direct monitoring as a device to reduce agency problems. Similarly, a CEO with a large equity holding faces a large financial penalty in the loss of firm value if they undertake non-value adding activities. CEO holdings is the percentage of stock owned by the CEO and Outside Holdings represents the aggregated holdings of the company's major outside shareholders. Shareholders who own 5% or more of the company's equity are disclosed in the annual report and accounts. Older CEOs may be able to command higher compensation packages on the basis of their greater experience. It is standard to enter an age squared term to capture reduced employment opportunities for CEOs approaching retirement. Finally, some companies, in defiance of the Combined Code, combine the roles of CEO and Chairman in the same person. Such individuals may be expected to command greater pay packages, either representing their larger marginal impact on firm value or their greater dominance of the boardroom.

Descriptive Statistics

[TABLE 2 ABOUT HERE]

Descriptive statistics of the key variables under analysis are presented in table 2. Quantiles are included in table 2 not just because sample means in remuneration data are vulnerable to outliers but because it is interesting to note the trends at the different points in the distribution. The growth in pay at the mean over the sample period is largely driven by growth at the higher percentiles. This growth at the higher end of the distribution is largely driven by increased bonuses and equity incentives, whereas salary has risen by similar amounts at all percentiles. These trends can be seen clearly in figure 1. An optimal contracting model can interpret these trends as an increase in the equilibrium price of CEOs over the sample period together with the increased risk premium associated with the greater variability of pay. From a managerial power perspective, the incentive mechanisms may have been manipulated by CEOs to provide reward for success without penalty for failure in absolute terms. Consistent with Gregg *et al.* (2005) average pay did not decline following the market downturn post 2000. However, with the onset of the financial crisis, 2008 median levels are less than the prior year after adjusting for inflation. It should also be noted that the panel is unbalanced hence the growth figures do not compare exactly the same set of companies in 1996 and 2008.

[FIGURE 1 ABOUT HERE]

Figure 2 illustrates the movement of board composition over the period. While there is little movement in total board size, boards have comprised a significantly greater proportion of non-executive directors, and particularly independent non-executive directors after 1999. This reflects the increasing pressure for companies to meet shareholder expectations of governance structure which are guided by the provisions contained within the Combined Code. Specifically, boards were recommended to comprise at least one-third non-executive directors and on revision of the Code in 2003 at least half non-executive directors (excluding the Chairman). The UK is characterised by a substantial increase in independent directors from 1995-2008, reflecting the consistent adoption of the Code provisions, institutional and investor guidelines. Both Manifest and Company own assessments identify these

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trends.
    [FIGURE 2 ABOUT HERE]

IV.   Results

Table 3 reports the estimates of ordinary least squares (OLS), fixed effects (FE) and general method of moments (GMM) regressions upon the companies' own assessments of independence as well as Manifest's assessments of directors' independence. For the reasons identified above the GMM regression is the preferred estimation. The two-step version of the GMM estimator is used (xtabond2 in Stata) and the Windmeijer (2005) correction is applied to the standard errors.
    [TABLE 3 ABOUT HERE]
    The estimated coefficients on the insider variables are not consistent with the managerial power model. If anything, a greater proportion of insiders on the board is associated with *less* CEO pay not more. The composition of the remuneration committee has no statistical impact on CEO pay. The extra independence failures that Manifest identifies as a result of their stricter application of best practice do not change this conclusion[13].
    The control variables behave as expected. Past realisations of pay explain a sizeable proportion of current pay, justifying the use of the GMM estimator. Larger companies, as measured by the number of directors and logged sales, are associated with greater levels of CEO pay. Total shareholder return is significant, with a 1% increase in TSR relating to a 3%-7% increase in CEO pay. Earlier studies in the UK failed to find a robust positive relationship between pay and performance. However, the increased used of equity based incentives over the last 20 years has strengthened the association between pay and performance (Main, Bruce & Buck 1996). In addition, a 1% increase in profits correlates to a roughly a 1% increase in pay. In the OLS specifications, age is positively correlated with remuneration, but the square of age is negative, suggesting an n-shaped relationship between that remuneration and age[14]. The turning point in the predicted values with respect to age is approximately 50.
    Outside holdings aggregates the non-management related disclosed shareholdings as published in the companies' annual report and accounts. The reported coefficients suggest that an increase in outside holdings has a diminishing effect on CEO pay. Both the managerial power and optimal contracting theories can accommodate this finding. Large outside ownership could be countering managerial power but may also be acting as a direct substitute for the management function. If the managerial power explanation is favoured then one would expect a positive relationship between CEO holdings and pay. However, this is not the case in any of the regressions above. Further, consistent with Conyon & Leech (1994), performing the role of Chairman

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[13]Further econometric specifications are presented in the author's PhD thesis, available online at *http://etheses.nottingham.ac.uk/666.* The absence of a positive statistically significant relationship between insiders on the remuneration committee and CEO pay was robust to these different specifications.

[14]Age is omitted from the fixed effects regressions as a year increase in age only enters the constant term when estimating within individuals over annual intervals.

as well as being the CEO is not associated with higher levels of remuneration for the CEO.

Further Specifications

This section explores the robustness of the absence of an insider effect by exploring alternative measurements of remuneration and independence. In addition to recording the company's opinion of independence together with an impartial independence assessment, the sample identifies each reason (there may be more than one) why a director is not considered independent. Consequently, the component parts of the independence assessment are explored here. Table 4 shows the reasons for independence failures as recorded by Manifest. These reasons can be collated into independence issues associated with a relationship to management; a business relationship with the company; representatives of large shareholders and those who were failed for tenure only. This is desirable as some of the failure types occur relatively infrequently in the sample but also because interesting differences may exist between different types of independence failure. An independence issue arising from a relationship with management may be considered to be more compromising than length of service alone. Indeed, the Combined Code (2003) provision that an independence issue may arise if a director has served on the board for nine or more years is controversial[15]. Companies often maintain that tenure alone is not a genuine independence issue. Indeed, the Association of Investment Trust Companies' Code of Corporate Governance (2003) does not recognise tenure as an independence issue. It is also important to distinguish directors who are, or who represent, major shareholders from insiders. Representatives of major shareholders are not regarded as independent directors under best practice guidelines but one would not expect these directors to be less vulnerable to managerial capture. Indeed, outside shareholders have a direct pecuniary incentive to ensure pay arrangements are not excessively generous.

[TABLE 4 ABOUT HERE]

It may also be possible that some elements of remuneration are easier to inflate then others. Indeed, Bebchuk & Fried (2004) suggest that CEOs target the more complex elements so to minimise shareholder and public outrage. Thus we may expect to see a greater insider effect on total remuneration or emoluments which are less transparent than salary. Therefore, in addition to reporting the component parts of remuneration, table 5 uses salary, emoluments and total remuneration as three different measures of pay.

Table 5 does not find support for a managerial power model. The only suggestion of an insider effect is between the number of directors on the remuneration committee who enjoy a material business relationship with the company and CEO salary using the fixed effects estimator. Here, an extra insider is worth approximately 3% of salary. However, upon controlling for prior period pay, this relationship does not survive. Further, there is no statistically robust relationship between emoluments or total remuneration and any of the insider variables, where, under a managerial power

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[15]The reason the Code identifies nine years is that directors are proposed for re-election once every three years and it is thought that three full terms may compromise the directors' impartiality.

model, one might expect a stronger relationship due to their greater complexity.

Taken together, the results can only be reconciled with the managerial power model if independence has no role in determining the extent to which CEOs can capture the pay setting process. Perhaps, the remuneration committee is always captured despite the reforming efforts to increase independence on the board. However, such a view is not consistent with evidence arising from in-depth studies of the board and the role of the non-executive directors (Higgs 2003; Roberts *et al.* 2005). While it remains unclear exactly how important independence is relative to other factors such as prior experience, there is consensus that independence is a relevant characteristic in shaping the directors' contributions. Thus the most plausible explanation for these results is that, by and large, CEO compensation is a tool used by companies to mitigate agency problems, rather than the product of unresolved agency problems and efforts by the CEO to capture the pay-setting process.

It should be stressed that this does not imply that independent non-executive directors are redundant in the effective operation of boards. The increase in independent directors may have greatly benefited companies and their shareholders over a whole range of corporate decisions. Evidence has emerged that CEOs with more independent directors are less able to resist dismissal in light of poor returns for shareholders (Gregory-Smith *et al.* 2009). However, on the issue of CEO pay alone, there is no evidence here that independent directors have been successful or have even been trying to curtail CEO pay.

[TABLE 5 ABOUT HERE]

Robustness Checks

The accurate measurement of the value of executive equity incentives is an important issue. The approach used here follows the practice in the remuneration consultancy industry (MM & K Ltd 2007) and calculates equity incentives as one third of their face value[16]. Studies such as Main *et al.* (1996) have applied an option evaluation methodology such as Black & Scholes (1973) or a binominal method (Cox *et al.* 1979). These models generate a theoretical price for an option grant based on: the company's share price at grant date, share price volatility, and dividend yield; the exercise period and price; and the risk free rate. Under new international accounting regulations (IFRS-2 Share Based Payments) these methods are used in the pricing of options in financial statements. However, the Black-Scholes values were not readily available in our sample and the cost in collecting the required inputs for the whole sample was prohibitive.

Further, both the Black-Scholes and binominal approaches are problematic. They assume the underlying asset returns follow the normal distribution (i.e. the underlying asset prices are distributed lognormally) which is not always the case and historical measures of price volatility must used to estimate future volatility. Moreover, there are no individual risk parameters in these valuation methodologies. Murphy (1999) shows how option valuations are sensitive to even small variations in the

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[16]Consultants differ on the denominator to face value. Hewitt New Bridge Street uses face/5 for options and face/2 for LTIPs. PricewaterhouseCoopers use face/3 for options and face/2 for LTIPs.

executive's aversion to risk. Further, Hall & Murphy (2000) describe how the standard methods evaluate the cost of the option to the firm, the value of which may be significantly different from the value to which an undiversified executive would place on his non-tradable option. A potential solution is given in Hall & Murphy (2002) where a certainty equivalence approach is developed to derive for what price an executive would swap their incentives. However, this method requires assumptions about each executive's preference for risk and their non firm-related wealth. This information was not available.

In addition, none of the standard models consider the impact of performance conditions. Performance conditions reduce the probability of vesting and therefore the present expected value of the incentive but to what extent is unclear. Performance conditions vary such that ideally, the vesting conditions on each grant would be considered separately. Bruce *et al.* (2003) demonstrate how producing a truly objective estimate of the impact of performance conditions on present expected value is an almost impossible task, particularly when vesting depends on the performance of company peers. To complicate matters further, Bebchuk *et al.* (2006) provide evidence for the opportunistic timing of option grants and Bebchuk & Fried (2004) identify the potential for opportunistic timing on exercise. Opportunistic timing would bias the value of any equity incentive calculated using the aforementioned pricing methods. In light of such uncertainty, Conyon & Murphy (2000)'s arbitrary discount of 20% when a performance condition is present, does not seem unreasonable.

Whilst taking a third of the face value may appear a crude measure it provides a good estimation of a share option's fair value. As a robustness check, 70 companies were randomly selected and the Black-Scholes value for the CEO equity grants were manually calculated from the inputs disclosed in the notes to the companies' financial statements for the 2005-2008 year ends. Table 6 shows that the face/3 method provides a good approximation of a fair value of an option grant. Although the mean difference between the face/3 and the Black-Scholes values are significantly different from zero, face/3 captures 97% of the variation in Black-Scholes measure. In the Black-Scholes formula, LTIPs are valued at face value due to the zero exercise price. Therefore, the face/3 captures all the variation of the Black-Scholes measure but at one third of the value. Yet taking one-third of the face value for LTIPs is reasonable as UK LTIPs require the satisfaction of performance conditions over the vesting period. By global standards, these performance conditions are demanding. Full vesting typically requires TSR in the upper quartile or even a top 10% finish relative to a peer group or market index and no vesting occurs if performance is below median, with straight line vesting between the median and the top threshold. Thus, on the assumption that every finishing rank is equally likely, the expected value from vesting is approximately one-third. Consequently, the face/3 measure remains sensible for LTIPs given the presence of performance conditions. Table 6 confirms that repeating the main regressions of table 3 on the small sample of Black-Scholes values, makes no material difference as to whether one uses the face/3 measure or the Black-Scholes value of equity incentives.

[TABLE 6 ABOUT HERE]

13

V.   Conclusion

This paper clarifies whether or not more independent directors in the pay-setting process reduces CEO pay. Prior empirical research has failed to reach consensus on this issue but the sample here permits more robust estimation. After controlling for the standard determinants of CEO pay, together with individual and firm fixed effects and prior realisations pay, this study fails to find any evidence that an increase in independent non-executive directors in the pay-setting process reduces CEO pay. There is no correlation between CEO pay and the percentage of insiders on the board. Nor is there a correlation between CEO pay and the percentage of insiders on the remuneration committee. These results are in agreement with recent research by Conyon, Core & Guay (2011) who also find no evidence to support the managerial power model[17]. The findings here are robust to different constructions of the dependent variable and remuneration committee independence. This conclusion challenges the theory of managerial power as well as the prevailing wisdom of institutional guidance. If CEO pay remains a concern going forward, academics and policy makers would do better to focus their attention on matters other than independence in the pay-setting process.

Figures and Tables

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[17]Conyon *et al.* (2011) find no evidence that stronger governance provisions in Europe relative to the US, result in lower CEO pay outcomes for European CEOs after adjusting for the smaller amounts of risk contained within European CEOs' service contracts. Risk-adjusting pay explains approximately half of the difference in pay between US and European CEOs.

Figure 1: CEO Remuneration 1996-2008

Figure 2: Board Composition 1996-2008

Table 1: Empirical literature

Study	Sample	Estimator	Dependent Variable	Principal Insider Variable	β	Comment
Conyon & Kuchinskas	1500 US firms (1998-2003)	FE	CEO total remuneration	% insiders on Rem Com	-0.048 (0.079)	No insider effect No support for managerial power
Bonet & Conyon	504 UK plcs (1999-2002)	RE	Director Emoluments	No. insiders on Rem Com	0.163** (2.54)	Positive insider effect Tentative support for managerial power
Conyon & He	455 US firms (1998-2001)	OLS	CEO total remuneration	% insiders on Rem Com	0.04 (1.27)	No insider effect Optimal contracting model preferred
Anderson & Bizjak	110 US firms (1985-1998)	FE	Director remuneration	% insiders on Rem Com	0.131 (0.47)	No insider effect
Core *et al.*	205 US firms (1982-1984)	OLS	CEO total remuneration	No. gray directors on Rem Com	0.009** (3.19)	Positive insider effect.
Newman & Mozes	161 US firms (1991-1993)	OLS	CEO total remuneration	=1 if insider influence and falling market value	0.0007** (-3.561)	No downside risk if insider dominated Suggestive of managerial power
Benito & Conyon	211 UK plcs (1985-1994)	FE	CEO Emoluments	=1 if separate Rem Com	0.0063 (0.23)	No support for managerial power
Conyon & Peck	94 UK plcs (1991-1994)	FE	HPD Salary + bonus	No. Outsiders on Rem Com	0.692** (2.91)	More independence *increases* pay
Conyon	213 UK plcs (1988-1993)	GMM	HPD Emoluments	Adopted a rem com	-0.026** (-2.13)	Adoption of Rem Com lowers HPD pay

Notes:

1. The dependent variables were measured in logs and hence the reported coefficients describe the percentage increase in the dependent variable for a unit increase in the explanatory variable. Core *et al.* (1999) did not log the dependent variable but the table above converts their reported coefficient at the median.

2. T-statistics in the parentheses; ** Significant at 5%; * Significant at 10%.

3. Rem Com = Remuneration Committee; HPD = Highest Paid Director; FE= Fixed Effects; RE=Random Effects; OLS = Ordinary Least Squares; GMM = Generalised Method of Moments.

Table 2: Descriptive Statistics

Key Variables	N	Mean	SD	Q10	Q25	Q50	Q75	Q90
CEO Remuneration								
Salary £000s	5,788	412	234	168	250	364	514	721
Growth 96-08		52.13%		76.69%	63.73%	43.24%	45.35%	61.12%
Emoluments £000s	5,836	1,063	1,913	233	368	608	1,099	2,146
Growth 96-08		193.03%		143.86%	127.14%	175.36%	217.19%	269.96%
Total Rem £000s	5,847	1,218	2,244	240	405	699	1,274	2,418
Growth 96-08		284.03%		178.19%	172.11%	212.75%	250.44%	347.72%
Board								
Size	5,198	8.73	2.88	6	7	8	10	12
No. Execs	5,198	3.98	1.83	2	3	4	5	6
No. NEDs	5,198	4.75	2.05	3	3	4	6	7
% insiders (C)	5,198	0.578	0.209	0.333	0.428	0.545	0.667	1
% insiders (M)	5,198	0.648	0.200	0.4	0.5	.625	0.778	1
Remuneration Committee								
Size	5,198	1.88	1.75	0	0	2	3	4
% insiders (C)	5,198	0.421	0.477	0	0	0	1	1
% insiders (M)	5,198	0.480	0.463	0	0	0.333	1	1
Control variables								
TSR	5,110	0.058	0.566	-0.489	-0.132	0.115	0.324	0.541
Sales £Ms	5,835	2,600	9,350	44.5	144	543	1,910	5,950
Profit £Ms	5,255	283	1,640	-23.3	8.23	45.80	178	603
CEO age	5,847	51.53	6.89	42.36	47.00	52.03	56.53	56.92
CEO Holdings %	4,595	2.29	7.50	0.004	0.015	0.700	0.514	4.810
CH&CEO %	5,847	10.8	3.10	0	0	0	0	1
Outside Holdings	4,595	31.65	18.39	8.660	16.90	29.73	44.60	56.88

Notes:

1. Emoluments comprises of salary, perks, bonuses, exercised options or equity incentives and any other cash payments received during the year. Total Remuneration is the same as emoluments but takes the grant date value of options and equity incentives instead of the exercised value. Total remuneration is the preferred measure of pay as it represents the expected value of the CEO's remuneration package for the year. All monetary values are annualised and expressed in December 2008 prices.

2. % insiders (C) denotes companies' own assessment of independence and (M) denotes Manifest's impartial assessment of independence.

3. Remuneration committee insiders are predominately non-executive directors who are not deemed independent. Less than 1% of remuneration committee members are executive directors, consistent with UK institutional guidance.

4. TSR = Total shareholder return, Execs = Executive directors, NEDs = Non-executive directors, Profit = Profit before tax, CH&CEO = 1 where the roles of Chairman and Chief Executive are performed by the same person, Outside Holdings = the aggregated disclosed holdings of non-management related major shareholders. Please refer to section III. for further details.

Table 3: Company Assessments vs. Manifest Assessments

Ln Total CEO Pay	OLS	FE	GMM	OLS	FE	GMM
% Insiders on the Board						
Companies' Assessments	-0.291**	0.023	-0.131			
	(-2.79)	(0.20)	(-1.54)			
Manifest's Assessments				-0.237**	-0.067	-0.115
				(-2.34)	(-0.61)	(-1.48)
% Insiders on the Remuneration Committee						
Companies' Assessments	0.013	0.017	-0.003			
	(0.30)	(0.46)	(-0.09)			
Manifest's Assessments				0.027	0.030	0.001
				(0.65)	(0.79)	(0.01)
Pay$_{(t-1)}$			0.2684**			0.2728**
			(4.70)			(4.82)
TSR	0.069**	0.060**	0.032*	0.068**	0.060**	0.032*
	(3.26)	(3.18)	(1.67)	(3.22)	(3.15)	(1.67)
Ln Sales	0.181**	0.071**	0.121**	0.179**	0.070**	0.119**
	(13.23)	(3.21)	(7.92)	(12.75)	(3.20)	(7.72)
Ln Profit	0.006**	0.007**	0.007**	0.006**	0.008**	0.007**
	(2.46)	(3.31)	(3.37)	(2.46)	(3.36)	(3.37)
No. Execs	0.022**	0.010	0.019**	0.019**	0.013	0.018**
	(2.24)	(0.92)	(2.44)	(2.02)	(1.38)	(2.46)
No. NEDs	0.110**	0.031**	0.076**	0.115**	0.029**	0.077**
	(9.99)	(2.24)	(6.09)	(10.74)	(2.24)	(6.33)
Committee Size	0.036**	-0.003	0.010	0.037**	-0.003	0.010
	(3.08)	(-0.20)	(1.18)	(3.21)	(-0.21)	(1.19)
Outside Holdings	-0.002**	-0.000	-0.001*	-0.002**	-0.000	-0.001*
	(-2.17)	(-0.51)	(-1.68)	(-2.21)	(-0.50)	(-1.66)
Chairman & CEO	-0.168**		-0.079	-0.164**		-0.078
	(-2.20)		(-1.27)	(-2.15)		(-1.26)
Age	0.063**			0.064**		
	(2.25)			(2.29)		
Age^2	-0.001**			-0.001**		
	(-2.42)			(-2.45)		
CEO Holdings	-0.001	0.000	-0.003	-0.001	0.000	-0.002
	(-0.35)	(0.13)	(-1.30)	(-0.34)	(0.16)	(-1.29)
N	3,630	3,630	3,090	3,630	3,630	3,090

Notes:

T-statistics are provided in the parenthesises. The constant term and time dummies were included but omitted from the output. With respect to the GMM regressions, for unbiasedness the deeper lags of pay that were used to instrument prior period pay must be uncorrelated with the error. This is tested with the Hansen J statistic. Another potential bias might arise from second order autocorrelation in the first differenced errors. Both these diagnostic tests are satisfied (Hansen J $\chi^2 = 37.49$, $Prob > \chi^2 = 0.708$; No AR(2)in first differences $z = -0.22$, $Prob > z = 0.828$).

Table 4: Independence Violations 1996-2008

	NED-years	
Total NED-years	40,455	
Failed by Company		11,620
Failed by Manifest		17,871
Relationship with Management	1,409	
Prior Executive Director		1,187
Family relationship		262
Business Relationship	2,875	
Material Business Relationship		1,426
Cross Directorship		84
Professional/Consultancy Services		546
Received fees other than for service as NED		940
Tenure ($\geq$ nine years)	6,260	
Only Tenure		4,765
Major Shareholders	1,616	
Outside major shareholder		1,396

Notes:

Manifest conducts independence assessments on an annual basis. A individual director may be independent in one year and violate independence in another. In any one year, a director may fail for more than one reason. In the earlier years of the sample, the reason for independence failure was not recorded.

Table 5: Independence Assessment Breakdown

	FE			GMM		
	a	b	c	a	b	c
Independence Issue						
Related to Management	-0.035	-0.081	-0.070	-0.007	-0.022	-0.040
	(-1.07)	(-0.62)	(-0.67)	(-0.24)	(-0.31)	(-0.54)
Business Relationship	0.027**	0.001	0.050	0.017	0.050	0.023
	(2.90)	(0.13)	(1.59)	(0.97)	(1.21)	(0.80)
Tenure Only	-0.026	0.005	-0.038	0.004	0.042	-0.019
	(-1.43)	(0.13)	(-1.08)	(0.25)	(1.22)	(-0.68)
Outside Shareholder	-0.021	0.040	-0.012	-0.018	0.045	0.036
	(-0.44)	(0.51)	(-0.22)	(-0.67)	(0.89)	(0.98)
Pay_{t-1}				0.136**	0.200**	0.271**
				(2.68)	(4.58)	(4.93)
TSR	-0.002	0.132**	0.059**	-0.005	0.119**	0.032*
	(-0.10)	(5.38)	(3.09)	(-0.39)	(4.41)	(1.67)
Ln Sales	0.049**	0.064**	0.070**	0.128**	0.115**	0.121**
	(3.47)	(2.76)	(3.19)	(9.61)	(7.80)	(7.94)
Ln Profit	0.003**	0.013**	0.008**	0.001	0.010**	0.008**
	(2.25)	(5.62)	(3.38)	(0.64)	(4.81)	(3.74)
No. Execs	0.003	-0.015	0.011	0.006	0.002	0.014**
	(0.58)	(-1.43)	(1.29)	(1.47)	(0.27)	(2.05)
No. NEDs	0.029**	0.017	0.031**	0.048**	0.079**	0.079**
	(3.82)	(1.30)	(2.46)	(8.00)	(7.53)	(6.55)
Committee Size	-0.027**	0.014	-0.004	0.006	0.009	0.011
	(-2.41)	(0.73)	(-0.35)	(1.08)	(0.84)	(1.27)
Outside Holdings	0.000	-0.000	-0.000	-0.001*	-0.000	-0.001**
	(0.03)	(-0.37)	(-0.45)	(-1.68)	(-0.31)	(-1.91)
CEO Holdings	0.000	0.003	0.001	-0.002*	-0.003	-0.003
	(0.22)	(1.27)	(0.30)	(-1.66)	(-1.25)	(-1.48)
N	3,606	3,629	3,630	3,069	3,088	3,090
Groups	1,063	1,072	1,072	935	943	943
Instruments				61	71	71
Hansen J χ^2				41.79	34.62	38.00
$Prob > \chi^2$				0.140	0.815	0.688
No AR(2) in				-0.53	1.05	-0.14
first differences				0.595	0.295	0.892

Notes:
1. a) salary; b) emoluments; c) total remuneration. Emoluments comprises of salary, perks, bonuses, exercised options or equity incentives and any other cash payments received during the year. Total Remuneration is the same as emoluments but takes the grant date value of options and equity incentives instead of the exercised value.
2. Robust t-statistics in the parenthesises.
3. Time dummies and constant included.

Table 6: Robustness Checks

	N	Mean	S.d	Median	Mean Diff. (T-stat)	Corr Coef. (R-squared)
Share Options						
Face/3 £000s	84	645	1,933	236	158	1.24
Black-Scholes £000s	84	803	2,413	305	(3.01)	(99.9%)
LTIPs						
Face/3 £000s	195	571	2,459	176	956	2.66
Black-Scholes £000s	195	1,528	6,543	469	(3.27)	(100%)

	OLS		FE		GMM	
% Board Insiders	0.133	-0.001	0.425	0.238	-0.269	-0.096
	(-0.42)	(0.00)	(1.10)	(0.67)	(-1.02)	(-0.29)
% Committee Insiders	-0.332**	-0.257*	0.002	-0.026	0.055	-0.021
	(-2.56)	(-1.82)	(0.02)	(-0.10)	(0.55)	(-0.12)
$\text{Pay}_{(t-1)}$					0.384*	0.229
					(1.63)	(0.96)
TSR	-0.100	-0.048	0.106	0.160	0.094	-0.022
	(-0.68)	(-0.31)	(0.99)	(0.62)	(0.82)	(-0.11)
Ln Sales	0.274**	0.255**	-0.377	-0.602	0.202**	0.222**
	(7.23)	(6.12)	(-0.88)	(-1.38)	(2.90)	(3.42)
Ln Profit	0.006	0.006	0.013*	0.013	0.006	0.009
	(0.38)	(0.33)	(1.68)	(1.17)	(1.02)	(0.93)
No. EDs	-0.033	-0.044*	-0.012	-0.026	0.001	-0.034
	(-1.51)	(-1.82)	(-0.64)	(-1.06)	(0.06)	(-1.36)
No. NEDs	0.009	0.001	0.040*	0.004	-0.002	0.014
	(0.52)	(0.02)	(1.65)	(0.14)	(-0.22)	(0.77)
Committee Size	0.014	0.019	-0.019	0.007	0.034**	0.025
	(0.76)	(0.86)	(-0.98)	(0.27)	(2.66)	(1.48)
Outside Holdings	0.001	0.001	0.008*	0.005	-0.001	0.001
	(0.06)	(0.01)	(1.70)	(1.08)	(-0.17)	(0.30)
Chairman & CEO	-0.097	0.029			0.258	0.119
	(-0.38)	(0.11)			(1.31)	(0.38)
Age	-0.045	-0.081				
	(-0.40)	(-0.61)				
Age^2	0.001	0.001				
	(0.66)	(0.83)				
CEO Holdings	-0.003	-0.003	-0.025	-0.012	-0.011	-0.013
	(-0.18)	(-0.15)	(-1.48)	(-0.44)	(-1.50)	(-0.76)
2006	-0.147	-0.057	-0.230**	-0.171	-0.103	-0.067
	(-1.34)	(-0.49)	(-2.12)	(-1.43)	(-0.97)	(-0.59)
2007	-0.007	-0.045	-0.017	-0.110	0.005	0.047
	(-0.08)	(-0.44)	(-0.25)	(-1.14)	(0.08)	(0.47)
N	166	166	166	166	95	95
Firms			69	69	52	52
R-squared	0.511	0.445	0.223	0.142		

Notes:

Let G be the number of shares granted, S be the share price at grant date; X the exercise price; r the risk-free rate; σ share price volatility; T time until expiry; and $N()$ the standard normal cumulative distribution function. The Black-Scholes value above (adjusted for continuous dividend yields) equals $G * (e^{-rt}(FN(d1) - XN(d2)))$ where $F = Se^{(r-q)T}$, $d(1) = \frac{\ln(F/X)+(\sigma^2)T}{\sigma\sqrt{T}}$ and $d(2) = d(1) - \sigma\sqrt{T}$. Face/3 is simply $\frac{G*S}{3}$. The inputs were taken as disclosed in the companies' notes to the financial statements within the 2005-2008 annual report and accounts.

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