Do Corporate Governance Mechanisms Influence CEO Compensation? An Empirical Investigation of UK Companies

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Abstract: The aim of this paper is to empirically examine the influence of corporate governance mechanisms, that is, ownership and board structure of companies, on the level of CEO compensation for a sample of 414 large UK companies for the fiscal year 2003/2004. The results show that measures of board and ownership structures explain a significant amount of cross-sectional variation in the total CEO compensation, which is the sum of cash and equity-based compensation, after controlling other firm-specific variables. We find that firms with larger board size and a higher proportion of non-executive directors on their boards pay their CEOs higher compensation, suggesting that non-executive directors are not more efficient in monitoring than executive directors. We also find that institutional ownership and block-holder ownership have a significant and negative impact on the CEO compensation, which shows the existence of active monitoring by block-holders and institutional shareholders. Finally, the results show that CEO compensation is lower when the directors' ownership is higher.

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I. Introduction

CEO compensation packages have been a focus of much academic and media interest. One important question is whether corporate governance mechanisms can play a significant role in determining the level of executive compensation. The literature suggests that corporate governance mechanisms may help to reduce the agency conflicts between executives and shareholders, and hence have an impact on compensation policy. Those mechanisms include ownership and board structure of companies. In this paper the aim is to investigate whether various corporate governance mechanisms have an impact on the level of CEO compensation for a sample of 414 large UK companies. First, we examine whether institutional shareholders influence the level of executive compensation. Additionally, the roles of managerial shareholdings, block shareholdings and the board structure of companies are also examined.

The role of institutional investors in the UK has been a hotly debated issue. There has been an increase in the ownership of UK equities by institutional shareholders from 30 percent in 1963 to 80 percent in 2004[1]. Given the aggregate size of institutional ownership in the UK equity market, one important question to investigate is how effective those institutional shareholders are in UK corporate issues. The results from several studies suggest that institutional investors in the UK seem to adopt a passive stance towards monitoring and disciplining firms' management. For example, Plender (1997) reports that financial institutions in the UK do not frequently vote at shareholders' meetings since they are not obligated to do so as they are in the US. He observes that

[1] ONS (Office for National Statistics)'s report 2004.

only about 28 percent of pension funds vote on a regular basis whereas 21 percent never vote and 32 percent cast their vote only on extraordinary items[2].

However, one can observe a change in institutional investors' interest in UK corporate governance. Recent news from the media show how vocal institutional shareholders have become in expressing their discontent about the remuneration packages CEOs and other senior managers have been awarded, especially in the light of preceding poor performances. For instance, in 2004 the decision of J Sainsbury's board to award the former chairman, Sir Peter Davis, a bonus of £2.4 m saw a serious reaction from the major institutional shareholders. Those shareholders revolted at the idea of the board's decision to award such a large bonus to a chairman under whom not only did the company's profit fall but also the company lost market share. Following the news of the board's U-turn on this matter J Sainsbury's share price rose. Other companies have experienced similar events which add to the anecdotal evidence that institutional shareholders have started playing an active role in determining CEO compensation. However, there has been no empirical study investigating whether the institutional investors have a significant impact on CEO compensation of the UK companies[3].

Another important corporate governance variable in determining the level of CEO compensation is the board structure of companies[4]. Despite the fact that the Cadbury Report (1992) led to substantial changes in the board structure of companies by increasing the proportion of non-executive (outsider) directors on the company boards, there has not been much evidence relating to the effectiveness of directors of UK companies. For example, Franks and Mayer (2000) argue that directors of UK

[2] See also Mallin (1995).
[3] A recent study by Hartzell and Starks (2003) finds a significantly negative relation between the concentration of institutional ownership and the level of executive compensation for a sample of US companies. Their result suggests that in the US institutions serve a monitoring role in mitigating the agency problem between shareholders and managers.
[4] See, for example, Core et al. (1999).

companies perform more of an advisory than a monitoring role. That is, powers to enforce fiduciary responsibilities on directors in the UK are weak. In this context, the role of board of directors in determining CEO compensation has been an unexplored area. In this paper, we investigate whether the size and structure of the board of directors have an influence on the level of CEO cash and equity-based compensation.

Our analysis reveals that measures of board and ownership structures explain a significant amount of cross-sectional variation in the total CEO compensation, which is the sum of cash and equity-based compensation, after controlling for other firm-specific variables. We provide evidence that firms with boards that are larger in size and have a higher proportion of non-executive directors on their boards pay their CEOs higher compensation, suggesting that non-executive directors are not more efficient in monitoring than executive directors. Moreover, our results show that institutional ownership and block-holder ownership have a significant and negative impact on the level of total CEO and cash compensation, which suggests the existence of active monitoring by block-holders and institutional shareholders. However, equity-based compensation does not seem to be influenced significantly by institutional ownership, while block-holder ownership has a negative and significant impact on equity-based compensation. Additionally, we find that firms with a higher level of CEO ownership pay less equity-based compensation to their CEOs. Finally, our findings show that CEO compensation is lower when the directors' ownership is higher.

The remainder of the paper is organized as follows: Section II discusses corporate governance mechanisms and their potential influence on CEO compensation. Thus, the role of institutional shareholders, characteristics of company boards, and ownership structure are considered. Section III explains the institutional framework in

the UK. Section IV describes data and sample characteristics, estimation procedure and results. Section V concludes.

II. Corporate Governance and CEO Compensation

Role of Institutional Investors and CEO Compensation

In general, institutions differ from individual investors in important ways. They hold much larger equity stakes than individual investors; they manage large pools of investment funds and therefore invest larger amounts in each of equity. Thus, one would expect institutions to have more incentives to monitor companies in which they have large amounts of investment at stake. The reason is that the benefits that institutions, as large shareholders, could receive from their monitoring activities are more likely to exceed the costs that they incur (Shleifer and Vishny, 1986).

However, some authors suggest that institutional investors rarely take action in corporate monitoring because they view liquidity as more important than building up the concentrated ownership required to have an influence on corporate management (Coffee, 1991; Bhide, 1994). Bhide argues that high liquidity in U.S. stock markets serves as an impediment to effective corporate governance; when dissatisfied with management actions, institutions sell their shares rather than hold on to their investment and use their votes to influence the company to achieve better results.

Maug (1998) investigates the claim that liquid stock markets prevent effective corporate governance and argues that the alleged trade-off between liquidity and control does not exist. Although in a more liquid market it is less costly to sell a large stake, such a market also makes it easier for investors to accumulate large stakes without substantially affecting the stock price and to capitalize on governance-related activities. Liquid stock markets have two opposing effects on corporate governance. On the one

hand, liquid markets can facilitate the exercise of corporate control because they allow large shareholders to emerge to correct managerial failure. On the other hand, liquid markets also allow large shareholders to dispose of their shares ahead of an expected fall in stock prices rather than become involved in management of the company. It is theoretically ambiguous which of these effects dominates.

Institutional investors hold a substantial ownership of total corporate equity in the UK. According to the ONS (2004) as of December 2003 institutional investors owned around 80 percent of UK equity, with the largest holdings being those of insurance companies 17 percent; pension funds 16 percent; unit trusts, investment trusts and other financial institutions together holding some 15 percent; and overseas investors 32 percent. Clearly, the potential role of institutions in UK corporate governance is an important area to explore. However there are only a few studies investigating how effective institutions are in monitoring and disciplining UK corporations. The previous studies by Goergen and Renneboog (2001), and Stapledon (1996) focused on the role of institutional investors in UK corporate governance. Their results suggest that institutions are passive investors; monitoring by institutions is not an important governance mechanism for UK corporate management. Mallin (1995)'s survey results from a sample of 250 large companies show that 90 % report voting levels of less than 52 %.

However, one can observe that substantial changes have occurred in the practices of institutional investors[5]. According to a report by the Committee inquiring into U.K. Vote Execution voting levels at U.K. companies moved from 20 % in 1990 to 50 % in 1999. However, this is still in substantial contrast to the U.S., where voting turnout can easily reach 70-80 % at many companies (Bethel and Gillan, 2002).

[5] In 1998, the Trade and Industry Secretary threatened legislative action if institutions continued with their current behaviour of not voting. Then, the amendment of the Companies Act in 2003 included a requirement for the shareholders' approval of compensation packages at the company general meetings.

Recent statements by the Association of British Insurers (ABI) and National Association of Pension Funds (NAPF) and by the Institutional Shareholders' Committee (ISC) emphasize the role of institutional investors in corporate governance. The ISC (2002) recommended policies on activism, which do not imply micro-managing the affairs of investee companies, but rather ensuring that shareholders derive value from their investments by dealing effectively with issues of under-performance.

Some institutions started publicly targeting corporations through the media and publicly expressed their dissatisfaction with executive compensation practices in terms of levels and performance sensitivities. For example, in May 2003, the pharmaceutical giant Glaxo-SmithKline (GSK) suffered an unprecedented defeat at its annual general meeting when shareholders, mainly institutional investors, voted against million pound pay deals for executives. Several other firms, including insurer Royal Sun Alliance, oil giant Shell, and Barclays Bank, have all faced significant shareholder dissent over executive pay in recent years. The Association of British Insurers (ABI) and the National Association of Pension Funds (NAPF), whose members own about half of the London Stock Exchange, have been threatening to vote down hefty pay increases for lame duck bosses. The NAPF and ABI said that companies should draft their chief executives' contracts in such a way that salary increases are tied more closely to performance. "Institutional investors have become increasingly concerned about executives leaving companies in circumstances where they have destroyed shareholder value, but appear to have been rewarded for that very act," said NAPF investment director, Mr. Gould[6].

[6] Similar developments have recently occurred in the US. For example, Mercer's study of CEO compensation in the 350 largest US public companies shows that institutional shareholders have pushed through many reforms in executive compensation. As a result, boards and executives have been held accountable for results and for the failure to sufficiently link pay and performance. More companies have started working with their institutional shareholders much more often than in the past to develop solutions that both meet management's needs and are fair to shareholders.

There are several reasons, which could explain this emphasis on institutional activism. One reason is that the percentage of shares that institutions hold has increased and it is difficult for them to sell large numbers of shares without causing a decline in the market. Secondly, some institutional investors put large portions of their portfolios into passively managed index funds, which they think might have better long-term results than an active trading policy. Thus, if an institution is committed to retaining a major shareholding in a company, it would have more interest in improving the company's performance. Consequently, institutional shareholders appear to become more active in their role as shareholders.

Despite these recent developments in the potential role of institutions in executive remuneration in the UK, there is not much empirical research investigating the extent to which institutions play a significant role in the determination of executive compensation[7]. Therefore, in the light of recent developments, understanding the role of institutional investors in the UK remains an important and unresolved question. One aim of this paper is to investigate the role of institutional shareholders in determining CEO compensation.

[7] One exception is a study by Cosh and Hughes (1997) that examines the role of institutional investors and non-executive directors in influencing pay/performance relationship. Their results suggest that the presence or absence of institutions made no appreciable difference to the level of pay. Their sample consists of 64 companies in the electrical engineering industry for the period 1989-94.

Board of Directors

Board of directors are widely believed to play an important role in monitoring management. Main responsibility of the board is to evaluate management and ensure that managers perform well. The non-executive directors (outside directors) who are not full-employees of the firm are believed to play a larger role in monitoring managers than executive directors (inside directors). For instance, Fama and Jensen (1983) argue that non-executive directors are likely to have an incentive to ensure the effective running of a company because being directors of well run companies signals their competence to the market. However, executive directors are viewed to have less incentive to provide effective monitoring. Given that executive directors' careers are tied to CEOs, they would be reluctant to substantially challenge their boss.

The academic literature on corporate governance examines the importance of alternative structures of boards of directors. However, the results from those studies suggest mainly mixed findings. Weisbach (1988) finds that firms with outsider-dominated boards are significantly more likely than firms with insider dominated boards to remove the CEO on the basis of performance, such as earnings and stock returns. Hence, studies examining the relation between firm performance and board composition find little evidence of a strong relation.

Another strand of the literature investigates the relation between executive compensation and board composition. Lambert et al. (1993) find that CEOs receive higher pay when they have appointed a greater proportion of the board. Core, Holthausen and Larcker (1999) also find that CEO compensation is an increasing function of the percentage of outside directors appointed by the CEO, which shows the ability of the

CEO to influence compensation decisions through his ability to influence outside directors.

Besides board composition, board size is also believed to have an important role in determining the board's effectiveness in monitoring management. For instance, Lipton and Lorsch (1992), and Jensen (1993) argue that board size affects corporate governance independent of other board attributes. Those arguments focus on the productivity losses that arise when work groups grow large.[8] That is, as board size becomes larger they become less effective because the coordination, communication and process problems overwhelm the advantages of having more people to draw on. Yermack (1996) finds evidence consistent with this argument. For a sample of large US companies, he finds an inverse association between board size and firm value. His findings also suggest that CEO performance incentives provided by the board through compensation operate less strongly as board size increases.

The existing literature about the relation between CEO compensation and board structure mainly concentrates on U.S. companies. Differences in institutional and regulatory conditions between the UK and US could lead to different results for each country. For instance, in the UK directors do not have fiduciary duties while in the US directors have a duty of care to shareholders and can be sued for failing to fulfil their fiduciary responsibilities. Franks et al. (2002) argue that the ineffective implementation of fiduciary responsibilities results in non-executive directors regarding their role as being primarily advisory rather than disciplinary. Based on those arguments the boards of UK companies are not expected to play a monitoring role in determining the level of CEO compensation. However, Dahya et al. (2002) find that boards of directors play an effective role in determining corporate performance for a sample of UK companies.

[8] That insight is borrowed from organizational behaviour research. See, Yermack (1996).

Their results indicate that CEO turnover increased following the issuance of the Code of Best Practice by the Cadbury Committee (1992). Their findings also show that there was an increase in the sensitivity of turnover to performance particularly for those companies, which adopted the Code[9]. Thus, there has been mixed evidence about the monitoring role of the boards of UK companies.

CEO stock ownership

The level of CEO stock ownership can be important in determining the extent of agency problems a corporation faces. Low levels of CEO's stock ownership could be seen as a symptom of severe agency problems (see, e.g., Jensen and Meckling, 1976). Thus, in designing CEO compensation packages firms are expected to take into account a CEO's stock holdings in his own company. CEOs with small shareholdings are more likely to be motivated by incentives provided through stock option awards.

Holderness and Sheehan (1988) find that managers who are majority shareholders in publicly traded companies receive marginally higher salaries than other officers[10]. One can interpret that evidence as indicating that CEOs with high share ownership could have more controlling power and use corporate resources to benefit themselves, such as providing higher compensation for themselves. In contrast to the findings of Holderness and Sheehan (1988), Allen (1981) provides evidence that the level of CEO compensation is a decreasing function of the equity held by the CEO. Lambert et al. (1993) find that CEO compensation is lower when the CEO's ownership is higher. Thus, there are mixed results for US companies about the relation between CEO compensation and CEO ownership.

[9] The Code emphasized the importance of non-executive directors, recommending that boards of publicly traded companies include at least three non-executive (i.e., outside) directors.
[10] Majority shareholders are defined as individuals owning at least half but not all of the common stock.

Additionally, Cheung et al. (2005) analyze a sample of 412 Hong Kong firms and argue that CEOs with large share ownership may complement their cash compensation with dividend income. Thus, if those CEOs receive dividend income, which is substantially higher than their cash compensation, then they are likely to be less concerned with the level of their cash compensation. Cheung et al.'s findings suggest that CEOs with considerable share ownership use dividends as a way of supplementing their cash compensation.

One of the aims of this paper is to investigate empirically the impact of CEO stock holdings on CEO compensation for the large UK companies. If institutional shareholders and boards of directors are passive, then one can expect that CEOs with higher stock ownership can help themselves and increase their compensation without any intervention. Thus, one would expect a positive relation between the level of CEO compensation and CEOs' ownership. However, if CEOs with large share ownership use dividends as a way of supplementing their cash compensation, then one would expect a negative relation between CEO ownership and cash compensation.

III. The Institutional Framework in the UK

In the 1990s several reports aiming to correct corporate governance problems in the UK were issued: Cadbury (1992), Greenbury (1995) and Hampel (1998) reports. These have helped focusing attention on the importance of corporate governance issues. The Cadbury (1992) report viewed institutional investors as having important responsibility in corporate governance. It included recommendations on the structure and responsibilities of corporate boards of directors. The two key recommendations were that boards of publicly traded companies include at least three non-executive (i.e., outside) directors and that the positions of chief executive officer (CEO) and chairman of the board of these companies be held by two different individuals. It was also recommended

that companies should establish remuneration committees. The reasoning underlying those recommendations was that greater independence could improve board oversight. In response to the recommendations, the overwhelming majority of publicly traded companies have established remuneration committees and they are comprised entirely of non-executive directors.

The Greenbury report (1995) concentrated specifically on executive compensation policies and recommended that all long term incentive schemes paid by firms, including share options, should be subject to challenging performance criteria. In response to those recommendations most of the publicly traded companies introduced goals for earnings per share (EPS) and total shareholder return (TSR) for the firms to achieve before long term incentive plans (LTIPs) would be vested. It also recommended the use of LTIPs over option grants and ruled out the common practice of discounting options by 15 % of the grant date share price. The report recommended that these measures should consider performance relative to a group of comparable companies. It highlighted that directors should not be rewarded for increases in share prices (or any other indicators) which might reflect inflation or general market movements, i.e. which are not directly related to managerial actions. These recommendations have seen widespread approval and rapid implementation.[11]

The Hampel Committee (1998) investigated the corporate governance recommendations in force in the UK. Both the Greenbury (1995) report and Hampel (1998) report have further made it a requirement for UK companies to disclose US style compensation information, allowing for more detailed compensation analyses. Hampel (1998) stresses the need to pay non-executives fixed fees and recommends the barring of giving them incentive compensation such as LTIPs. The recommendations of all three

[11] See, Conyon et al (2000).

reports were combined to form part of the London Stock Exchange (LSE) Combined Code, which all companies listed on the LSE must abide by.

Overall, those reports also played an important role in enforcing detailed disclosure rules for UK executive compensation. Now, UK company annual reports contain sufficient information about executive compensation packages to analyse total annual compensation. Previously it was not possible to evaluate the total executive compensation including the value of share options, because of poor disclosure requirements for the UK companies.

Conyon (1997) showed that remuneration committees, an increasingly popular institutional device for setting top pay in the UK, may have some influence on director compensation but his result is not particularly robust. He concludes that there is only mixed evidence. He also finds that separating the roles of chairman and chief executive officer, which might potentially mitigate agency problems associated with top pay setting, plays a minor role in influencing director pay. Conyon uses only cash compensation data for a sample of 213 large UK companies.

IV. Data and Estimation

Data and Sample Characteristics

We obtain CEO compensation data for the fiscal year 2003/2004 from the FTSE ALL share index companies' annual reports. Our data include the British pound values of salary, bonus, stock options and long-term incentive plans. Stock options are valued using the Black-Scholes formula. Information on board composition, CEO stock ownership, blockholder ownership (5 % or more of outstanding shares), and institutional

ownership is collected from Hemscott[12]. Financial data was taken from Datastream. To be included in the sample, compensation data must be available from the annual reports, ownership and board data must be available from Hemscott, financial data must be available for the fiscal year 2003/2004. The final sample consists of 414 firms from both financial and non-financial sectors.

Measuring the components of CEO compensation

CEOs in the UK receive base salaries and are eligible for annual bonuses, which are based on accounting performance. They also receive share options, normally issued at the current share price. In the UK, options are generally exercisable at the holder's discretion after three to seven years, subject to the achievement of a performance target, such as growth in earnings per share. Many companies use long-term incentive plans (LTIPs) in addition to or instead of an option scheme. Thus, LTIPs are grants of shares of stock that become vested (i.e., ownership is transferred to the CEO) if certain performance targets are achieved. It is notable that while the most common performance condition on options is the achievement of a certain level of growth in earnings per share, for long-term incentive plans the most common measure is total shareholder return, the combined dividend and capital gain return to shareholders over a period of time. CEOs are rewarded for their relative total shareholder return compared to an index or a group of peers. The advantage of using total shareholder return as a performance measure is that it is aligned with shareholder return, and is perceived to be outside the immediate control of the executives. Recently, institutional investor pressures have led to performance targets being increased[13].

[12] Hemmscott (www. Hemmscott.com) plc supplies governance information about the UK publicly traded companies.
[13] Financial Times,'Mastering Corporate Governance'(www.ft.com/sponsored reports).

Following the literature, we define cash compensation as the sum of base salary and annual bonus, while total compensation is defined as the sum of base salary, annual bonus, LTIP awards, and stock options valued at grant date. LTIP share grants are measured at the face value of the shares on the grant date and 20% discount is imposed for the performance contingent grants. Value of LTIP cash awards is calculated as the amount paid during the fiscal year[14]. For measuring the grant-date expected stock option value, we use Black and Scholes (1973) formula, which is adjusted for continuously paid dividends. Thus, the formula for calculating stock option value is as follows:

$$\textit{Value of stock option} = Pe^{-\ln(1+d)T} N(z) - Xe^{-\ln(1+r)T} N(z - \sigma\sqrt{T})$$

$$z = \frac{\ln(P/X) + [\ln(1+r) - \ln(1+d) + \sigma^2/2]T}{\sigma\sqrt{T}}$$

where P is the grant-date share price, X is the exercise price, T is the time remaining until expiration, d is the annualised dividend yield, σ is the stock price volatility, r is the risk-free discount rate, $N()$ is the cumulative normal distribution function. Similar to Conyon and Murphy (2002) volatility is defined as the standard deviation of monthly continuously compounded returns over the prior 48 months, multiplied by $\sqrt{12}$. The risk free rate is measured as the average yield on 7-year UK treasury bills. Dividend yields are measured as the average of the prior 48 monthly observations on cash dividend per share.

Sample characteristics

Table 1 (A) presents descriptive statistics on compensation structures for our sample of 414 UK firms. Compensation figures are expressed as British pound values. Total compensation for our sample of 414 firms has an average of £892,132 and ranges

[14] See Conyon and Murphy (2002).

from £104,038 to £8,740,764. The mean (median) value of base salary is £386,435 (340,000). The average cash bonus is £234,262. In our sample, the CEOs receive an average of £137,510 in stock options and £133,923 in LTIPs. The maximum amount for stock options is £4,223,000. On average base salary is the largest source of pay. 117 companies in our sample of 414 companies use LTIP as part of CEO compensation. This feature of our data is not consistent with Main (1996)'s argument that after the recommendations of the Greenbury report companies are inclined to replace stock option rewards with LTIPs. For our sample the number of companies using share option rewards is 220, which is larger than the number of companies using LTIPs.

The descriptive statistics of the firms in our sample are shown in Table 1(B). The average firm size (sales) is £ 2,290 million and the median is £ 465 million. Following Conyon and Murphy (2000) we define sales revenue as net interest income for banks and total income for insurance companies. Stock return, which is a measure for firm performance, has an average of –18.77 percent with a standard deviation of 51.99 percent. Tobin's Q, a proxy for growth options, averages 1.64 and ranges from 0.66 to 11.19[15]. The average board size is 9 and non-executive board membership is about 55.6 % on average ranging from 0 % to 86.7 %. The average institutional ownership is 31.4 % and average block-holder ownership is 27.5 %. The mean CEO ownership is 1.71 % and range from 0 to almost 66 % of outstanding shares. The directors have ownership positions ranging from no ownership to 70.3 %, with a mean of 4.19 %.

Table 2 reports correlations between the variables. We observe that there is a high correlation between cash compensation and total compensation (0.87), and also between equity-based compensation and total compensation (0.89). The correlation

[15] Tobin's Q is measured as the sum of book value of assets plus market value of common stock minus book value of common stock divided by book value of total assets.

between firm size (sales) and board size is 0.45. As expected, the correlation between blockholder ownership and 4 largest institutional ownership is considerably high (0.62).

Estimation

To investigate whether corporate governance variables have a significant association with CEO compensation, we estimate cross-sectional regressions, using components of CEO compensation, that is, cash compensation, equity-based compensation, and total compensation as the dependent variable. Equity-based compensation is the sum of the value of CEO stock options and LTIP. Several different regression models are used to test the impact of corporate governance measures on CEO compensation controlling for firm-specific variables.

Previous research has shown that there is evidence of a relation between CEO compensation and some firm-specific variables, such as firm size and growth opportunities. Among others, Conyon and Murphy (2000) document that larger firms pay higher compensation to their CEOs. Smith and Watts (1992) find that managerial compensation changes across size and growth opportunities. They argue that firms with growth opportunities are likely to use incentive-based compensation since it is more difficult to observe actions of managers in those firms. Tobin's Q is used as a proxy for growth opportunities and sales revenue as a proxy for firm size. Stock return is used as a measure for firm performance[16]. We also use industry dummy variables to control for compensation similarities within industries, which can be considered as fixed effects at the industry level. In order to minimize the simultaneity problem, we use lagged values of the explanatory variables. The results of the regressions are provided in Tables 3 to 5.

[16] Core et al. (1999) also employ stock return as a measure for firm performance. Additionally, return to assets is also used as a measure for performance in the literature. However, we do not use that measure in our analysis since our sample includes both financial and non-financial firms.

Table 3 reports OLS estimation results for CEO cash compensation, which is measured as the sum of base salary and cash bonus. The coefficients for the industry dummies are not reported in the tables, as they are not of direct interest for this study. The coefficient on the stock return variable is positive but not significant. Our reported measure of firm performance is stock return, but we also employed $\Delta(\text{shareholder wealth})_t$, change in shareholder wealth, which is used by Hartzell and Starks (2003) and Jensen and Murphy (1990). However, our results did not change[17]. For brevity, we do not report those results.

The regression estimates in Table 3 show that larger firms pay greater CEO compensation, which is consistent with previous studies[18]. Tobin's Q has a positive and significant impact suggesting that firms with higher growth opportunities pay higher cash compensation to their CEOs. Those results could be interpreted as reflecting a demand for higher quality CEO talent as firms' size and growth opportunities increase. The results in Table 3 also show that there is a positive and significant association between CEO cash compensation and board size. This positive slope is consistent with an interpretation that problems with coordination, communication, and decision-making can hinder board effectiveness, which might be revealed as higher cash compensation for CEOs as the number of directors increases. Additionally, the results show that firms with a higher proportion of non-executive directors offer higher cash salaries for CEOs. This result can be considered as consistent with the findings of Franks, Mayer, Renneboog (2001). Their results suggest that non-executive directors do not perform a disciplinary function in the UK companies. They find that non-executive directors tend to entrench management by reducing board turnover in poorly performing companies.

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[17] $\Delta(\text{shareholder wealth})_t$ is defined as $r_t V_{t-1}$, where r_t is the rate of stock return realized in fiscal year t, and V_{t-1} is the firm value at the end of the previous year.

[18] For example, see Conyon and Murphy (2000).

The results demonstrate that the level of CEOs' cash compensation is negatively and significantly related to institutional ownership concentration, which is measured as the sum of top 4 institutional share holdings and the total institutional shareholdings. This result suggests that institutional shareholders provide monitoring for CEOs' cash compensation level. It is also consistent with the theoretical literature regarding the role of the large shareholder; that is, institutions have greater influence when they have large shareholdings in firms. Our empirical results provide support for the anecdotal evidence that recently institutional investors have become more active in the UK corporations. Thus, contrary to the previous empirical evidence, we find that the institutional shareholders in the UK companies are not passive[19].

The estimated coefficient for block-holder shareholding is also negative and significant. The negative relation is consistent with the argument that block-holders act as a check on the CEO pay level. One would expect that if block ownership is more concentrated, then those block-holders would coordinate their monitoring with relatively greater ease and exert pressure on management. Thus, they can help ensure that management does not expropriate wealth from shareholders in the form of excess pay.

CEO stock ownership has a negative and insignificant effect on CEO cash compensation, while the coefficient for directors' stock ownership is positive and significant. For a sample of US companies, Core et al. (1999) report results of significant and negative coefficients for CEO stock ownership. Overall, we find that cross-sectional variation in CEO compensation can be partially explained by measures of board and ownership structure. The results are qualitatively very similar if we estimate the regressions using the natural logarithm of compensation as the dependent variable. We do not report these alternative specifications for the sake of brevity.

[19] See, for example, Cosh and Hughes (1997) and Franks et al. (2001).

Table 4 reports the Tobit regression results for equity-based compensation, which is defined as the sum of the value of stock options and LTIPs[20]. The Tobit approach is appropriate since stock options data have a large number of zero-valued observations and thus, have a truncated distribution. 53.1 % of companies in our sample offer stock options to their CEOs for the year 2003/2004. For LTIPs it is 28.3 %.

In Table 4, columns (1) to (6) show that the coefficient on the stock return is negative but not significant. The estimated coefficient for firm size is positive and statistically significant. This finding suggests that larger firms use more equity-based compensation than smaller firms. This is consistent with the evidence for the US firms. Additionally, the estimated coefficient for Tobin's Q is positive, but statistically insignificant.

In addition, the board size and proportion of non-executive directors have a positive and significant impact on the level of equity-based CEO compensation. Those results are consistent with the findings of Mehran (1995), Core et al. (1999), and Ryan and Wiggins (2001) who study the US firms. However, it is not consistent with the substitution hypothesis saying that non-executive directors reduce the potential agency conflicts between shareholders and CEOs, thus reducing the need for equity-based incentive compensation. The estimated coefficients for 4 largest institutions' ownership and total institutional ownership are negative but insignificant. However, the coefficient for block-holder ownership is negative and significant at the 5 percent level. The negative impact of block-holder ownership on CEO equity-based compensation is consistent with substitution effect. That is, the larger the block-holder ownership, the more monitoring those large shareholders provide, which ultimately reduces agency

[20] See Yermack (1996) and Hartzell and Starks (2003) who also use the Tobit approach.

problems. Thus firms with those large shareholders would have less need for their CEOs to have equity-based incentive compensation.

We find that the estimated coefficients for CEO ownership and directors' ownership are negative and statistically significant. This result is consistent with the hypothesis that as managers' stock ownership increases, managers' interests become more aligned with those of shareholders and there is less need for managers to have equity-based incentive compensation.

Table 5 reports OLS regression results for total CEO compensation, which is the sum of cash compensation and equity-based compensation. The results indicate that the coefficient on the stock return is not statistically significant. Company size has a significant and positive impact on the total compensation level. Tobin's Q, the proxy for growth opportunities, has also positive and generally significant impact. Additionally, the estimated coefficients for board size and the proportion of non-executives on the board are positive and statistically significant at the 1 percent level. So the results suggest that board structure matters for the total CEO compensation level. Similar to the results for U.S. companies, we find that institutional shareholdings have a negative and significant impact on the total CEO compensation level. Block-holders also play a significant role in determining the total CEO compensation as their ownership increases, the total CEO compensation declines.

VI. Conclusion

CEO compensation packages have been viewed as important in mitigating the conflict of interest between managers and shareholders in corporations. It has been widely recognized that compensation packages could potentially play an important role in motivating top managers. Therefore it is important to understand how corporations set

the CEO compensation packages and what factors play an important role in determining the level of compensation. This paper provides additional empirical evidence on the determinants of CEO compensation level for a sample of 414 listed UK companies for the fiscal year 2003/2004. The results indicate that corporate governance mechanisms influence the level of CEO compensation level. The findings suggest that larger firms, firms with higher growth opportunities pay their CEOs higher compensation, which one can interpret as reflecting their demand for higher quality CEO talent. Additionally, firms with larger board size and a higher proportion of non-executive directors pay their CEOs higher level of cash compensation. We also document that institutional and block-holder ownership have a significant and negative impact on the level of total CEO and cash compensation, which shows the existence of active monitoring by block-holders and institutional shareholders. Hence, the equity-based compensation does not seem to be influenced significantly by institutional ownership, but block-holder ownership has a significantly negative impact on equity-based compensation. Furthermore, firms with a higher level of CEO ownership pay less equity-based compensation to their CEOs. Finally, our findings show that CEO compensation is lower when the directors' ownership is higher.

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Table 1 (A)
Descriptive statistics of components of CEO compensation (in British pound values) for 414 UK firms for the fiscal year 2003/2004. Compensation is classified as base salary, cash bonus, stock options and long-term incentive plans (LTIPs).

	Mean	**Median**	**Max**	**Min**	**Std. Dev.**
Base Salary *(£000's)*	386.435	340	1,819	62	205.745
Cash Bonus *(£000's)*	234.262	139.740	2,808	0	331.911
Stock options *(£000's)*	137.510	4.140	4,223	0	334.206
LTIP *(£000's)*	133.923	0	2,648	0	340.207
Total Compensation *(£000's)*	892.132	638.343	8,740	104.038	879.341

Table 1 (B)

Descriptive statistics for firm characteristics, ownership and board structure for the fiscal year 2003/2004.

	Mean	Median	Max	Min	Std. Dev.
Sales (£ millions)	2,290	465	118,000	8.407	7,261
Return	-18.77	-9.31	94.9	-3.43	51.99
Tobin's Q	1.64	1.36	11.19	0.66	1.02
Board size	9	9	21	4	2.70
Non-executive board members (%)	55.63	55.55	86.67	0	12.373
Institutional ownership (%)	31.44	29.11	81.35	0	18.90
4 largest institutional ownership (%)	25.34	24.27	79	0	13.71
Blockholder ownership (%)	27.51	25.17	89.05	0	19.85
CEO ownership (%)	1.71	0.09	65.8	0	5.89
Directors' ownership(%)	4.19	0.63	70.26	0.01	9.28

The sample size is 414 firms for the fiscal year 2003/2004. Return denotes percentage stock return from 2002 to 2003, which is calculated from the return index provided by Datastream. Block-holder ownership is defined as percentage of total stock held by non-managerial and non-board members having 5% or more equity in firm. Tobin's Q is measured as the sum of book value of assets plus market value of common stock minus book value of common stock divided by book value of total assets. Board size measures the total number of executive and non-executive board members.

Table 2. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1) Cash Compensation	1.00												
2) Equity-based-Compensation	0.55*	1											
3) Total Compensation	0.87*	0.89*	1										
4) Sales	0.50*	0.26*	0.43*	1									
5) Return	0.00	-0.02	-0.01	-0.02	1								
6) Tobin's Q	0.13*	0.09	0.12*	0.04	-0.07	1							
7) Board size	0.43*	0.25*	0.38*	0.45*	0.00	0.10*	1						
8) Non-executive board members(%)	0.32*	0.21*	0.30*	0.15*	-0.02	0.00	0.11*	1					
9) 4 largest institutional ownership (%)	-0.24*	-0.11*	-0.19*	-0.20*	0.01	-0.06	-0.21*	0.00	1				
10) Institutional ownership	-0.27*	-0.13*	-0.22*	-0.22*	0.01	-0.05	-0.24*	-0.05	0.90*	1			
11) Blockholder ownership	-0.29*	-0.19*	-0.27*	-0.24*	0.06	-0.03	-0.17*	-0.04	0.62*	0.59*	1		
12) CEO Ownership	-0.08	-0.10*	-0.11*	-0.07	-0.03	0.07	-0.14*	-0.13*	-0.08	-0.07	0.23*	1	
13) Directors' ownership	-0.17*	-0.14*	-0.18*	-0.11*	0.03	0.06	-0.09*	-0.17*	-0.08	-0.08	0.35*	0.55*	1

This table reports correlations of the variables used in the regression analysis for a sample of 414 firms for the fiscal year 2003/2004. The * shows significance at 5 percent or lower. Block-holder ownership is defined as percentage of total stock held by non-managerial and non-board members having 5% or more equity in firm. Return denotes percentage stock return from 2002 to 2003, which is calculated from the return index provided by Datastream. Tobin's Q is measured as the sum of book value of assets plus market value of common stock minus book value of common stock divided by book value of total assets. Board size measures the total number of executive and non-executive board members.

Table 3: Corporate governance effects on CEO cash compensation:
Dependent Variable: *Cash*

Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)
Return	31.393 (0.85)	35.720 (0.99)	31.488 (0.86)	35.946 (1.00)	42.398 (1.16)	41.773 (1.16)
Sales	0.00002*** (5.34)	0.00002*** (5.53)	0.00002*** (5.40)	0.00002*** (5.61)	0.00002*** (5.65)	0.00002*** (5.67)
Tobin's Q	41.881* (1.64)	44.634* (1.70)	42.541* (1.69)	45.403* (1.78)	41.409 (1.55)	44.303* (1.66)
Board size	37.831*** (4.69)	37.224*** (4.82)	36.792*** (4.64)	36.080*** (4.76)	39.913*** (5.28)	39.215*** (5.27)
Proportion of non-executive directors	9.281*** (4.82)	8.724*** (4.60)	9.095*** (4.76)	8.509*** (4.52)	9.341*** (4.93)	8.953*** (4.75)
% 4 largest institutional ownership	-4.001*** (-3.40)	-4.348*** (-3.71)	-	-	-	-
% Total institutional ownership	-	-	-3.174*** (-3.78)	-3.544*** (-4.12)	-	-
% Block-holder ownership	-	-	-	-	-4.083*** (-4.77)	-3.634*** (-4.25)
% CEO stock ownership	-0.864 (-0.22)	-	-0.922 (-0.23)	-	2.971 (0.73)	-
% Directors' stock ownership	-	-5.023*** (-2.66)	-	-5.463*** (-2.73)	-	-1.762 (-0.90)
R^2	0.37	0.38	0.38	0.39	0.39	0.38

This table shows coefficients from the OLS regression of the CEO compensation against the return, which denotes percentage stock return from 2002 to 2003 calculated from the return index provided by Datastream, firm size (sales), Tobin's Q, board size, proportion of non-executive directors on the board, percentage of total institutional share ownership, block-holders' ownership. Tobin's Q is measured as the sum of book value of assets plus market value of common stock minus book value of common stock divided by book value of total assets. Board size measures the total number of executive and non-executive board members. The coefficient of intercept is not reported. T-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent standard errors. ***, ** and * indicate coefficient is significant at the 1, 5 and 10 percent level, respectively.

Table 4. Tobit analysis: Governance effects on CEO equity-based compensation
Dependent Variable: Equity –based Compensation, which is measured as the sum of the value of stock options and long-term incentive plans.

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
Return	-27.436 (-0.44)	-13.546 (-0.22)	-27.217 (-0.43)	-13.366 (-0.21)	-17.781 (-0.28)	-7.90 (-0.13)
Sales	0.00001** (2.26)	0.00001** (2.06)	0.00001** (2.28)	0.00001** (2.07)	0.00001* (1.87)	0.00001* (1.80)
Tobin's Q	38.755 (1.25)	36.250 (1.18)	39.064 (1.26)	36.616 (1.19)	36.627 (1.19)	34.641 (1.13)
Board size	36.005*** (2.62)	37.674*** (2.75)	35.984*** (2.60)	37.483*** (2.72)	35.554*** (2.63)	37.389*** (2.77)
Proportion of non-executive directors	9.019*** (3.33)	8.739*** (2.71)	8.962*** (3.31)	8.663*** (3.21)	9.209*** (3.42)	9.002*** (3.34)
4 largest institutional ownership	-1.241 (-0.51)	-1.532 (-0.63)	-	-	-	-
Total institutional ownership	-	-	-0.747 (-0.42)	-0.87 (-0.58)	-	-
Block-holder ownership	-	-	-	-	-4.146** (-2.49)	-3.533** (-2.05)
CEO ownership	-19.578** (-2.43)	-	-19.498** (-2.53)	-	-16.124** (-2.07)	-
Directors' ownership	-	-13.501*** (-3.13)	-	-13.486*** (-3.12)	-	-10.811*** (-2.62)

This table shows coefficients from the Tobit regression of the CEO compensation against the return, which denotes percentage stock return from 2002 to 2003 calculated from the return index provided by Datastream, firm size (sales), Tobin's Q, board size, proportion of non-executive directors on the board, percentage of total institutional share ownership, block-holders' ownership. Tobin's Q is measured as the sum of book value of assets plus market value of common stock minus book value of common stock divided by book value of total assets. The coefficient of intercept is not reported. T-statistics are provided in parenthesis. ***, ** and * indicate coefficient is significant at the 1, 5 and 10 percent level, respectively.

Table 5. Governance effects on CEO total compensation
Dependent Variable: Total Compensation

Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)
Return	30.853 (0.50)	41.007 (0.68)	30.853 (0.50)	41.392 (0.69)	50.302 (0.84)	52.106 (0.87)
Sales	0.00003*** (3.30)	0.00003*** (3.33)	0.00003*** (3.32)	0.00003*** (3.35)	0.00003*** (3.34)	0.00003*** (3.35)
Tobin's Q	75.771* (1.64)	79.341* (1.68)	76.646* (1.67)	80.362* (1.73)	74.395 (1.53)	78.119 (1.59)
Board size	62.712*** (3.69)	62.552*** (3.80)	60.927*** (3.61)	60.595*** (3.71)	65.285*** (3.98)	64.944*** (4.02)
Proportion of non-executive directors	16.038*** (4.66)	15.126*** (4.46)	15.763*** (4.62)	14.806*** (4.41)	16.165*** (4.77)	15.547*** (4.61)
% 4 largest institutional ownership	-5.733*** (-2.58)	-6.234*** (-2.84)	-	-	-	-
% Total institutional ownership	-	-	-4.757*** (-3.06)	-5.196*** (-3.35)	-	-
% Block-holder ownership	-	-	-	-	-7.185*** (-4.59)	-6.413*** (-4.06)
% CEO stock ownership	-5.675 (-1.51)	-	-5.835 (-1.57)	-	0.726 (0.17)	-
% Directors' stock ownership	-	-11.313*** (-4.20)	-	-10.504*** (-4.04)	-	-5.531** (-2.10)
R^2	0.30	0.30	0.30	0.30	0.31	0.31

This table shows coefficients from the OLS regression of the CEO compensation against the return, which denotes percentage stock return from 2002 to 2003 calculated from the return index provided by Datastream, firm size (sales), Tobin's Q, board size, proportion of non-executive directors on the board, percentage of total institutional share ownership, block-holders' ownership. Tobin's Q is measured as the sum of book value of assets plus market value of common stock minus book value of common stock divided by book value of total assets. The coefficient of intercept is not reported. T-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent standard errors. ***, ** and * indicate coefficient is significant at the 1, 5 and 10 percent level, respectively.