New Insights in Executive Compensation: Evidence from UK Property Companies

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Abstract

This paper addresses the drivers of executive compensation for a unique sample of UK property companies. The empirical results indicate that company size is the most important variable in explaining the level of executive compensation. Besides that, absolute share performance is significant in explaining both cash and long-term compensation, while measures for company outperformance over the real estate sector and the UK stock market are less powerful in explaining the level of executive compensation. Furthermore, the use of alternative monitoring mechanisms seems to be efficient, as the preference for long-term incentivisation implemented by institutional shareholders, outside directors and debtholders leads to an increased pay-performance sensitivity. Furthermore, the presence of large blockholders amongst investors leads to lower levels of compensation and a relatively strong pay-performance sensitivity. Concerning the influence of sector-specific variables, we find that diversification of property investments leads to lower levels of executive compensation, whereas investing in high-quality property is related to a higher compensation level.

1. Introduction

The issue of executive compensation has garnered a lot of attention over the last decades, with an explosion in public criticism during the late 90s, when the stock market, and consequently the value of executive stock options, skyrocketed. Moreover, the subsequent downturn of the stock market does not seem to have lowered executive compensation by much, casting doubt on the well-performing stock market as the key argument for high compensation levels. Besides executive compensation, recent corporate scandals like Enron and WorldCom fuelled the public discussion about responsible managerial behaviour and have lead to an increased focus on the issue of corporate governance, both in the academic and the corporate environment.

Executive compensation is one part of corporate governance practices, and it represents a commonly used solution to the traditional agency problem, which is caused by the separation of ownership and control. In a situation where the managers of a company are not the owners, individual objectives can arise. These divergent interests result in agency costs, as the principal incurs monitoring expenditures, the cost of incentives, which are used to stimulate value-maximizing behaviour, and residual loss. Using pay-for-performance compensation contracts, both risk-sharing with the agent and stimulation of outperformance can be achieved. Moreover, compensation mechanisms affect the quality of managers that can be attracted by organizations, as performance-focused managers will often be attracted by incentive-based payment systems (Milgrom and Roberts, 1992). When a compensation plan is developed initially, it has to be approved by the board of directors. Consequently, compensation practices are controlled by shareholders and alternative governance mechanisms, such as debtholders and institutional investors. The presence of these governance mechanisms may prevent managerial abuse of compensation schemes.

The effects of corporate governance mechanisms on managerial fee setting have been previously explored for the US market. For example, Del Guercio, Dann, and Partch (2003) find for a sample of US closed-end investment companies that an efficient board leads to lower management expense ratios. Tufano and Sevick (1997) report the same finding for the broader US mutual fund industry. In this paper, we document evidence on executive compensation practices in listed real estate companies. The real estate sector is known for its relatively low transparency, which is an important driver of information asymmetry between

shareholders and managers. This may result in a weak relation between executive compensation and firm performance. For example, Pennathur and Shelor (2002) find that the average level of executive compensation in US REITs rose by 20 percent in 1999, while the SNL REIT Equity index fell by 5 percent in the same period. Another example indicating the relatively low transparency in the listed real estate sector is a recent publication of the European Public Real Estate Association (EPRA). The publication contains a revision of the policy recommendations of that industry organization with respect to transparency in the real estate sector, stimulating 'transparency, uniformity and comparability of financial reporting by real estate companies' (EPRA Best Practices, 2004).

The low transparency of the real estate sector may also lead to informational inefficiency of the market underlying listed property funds, which provides managers with the opportunity of adding value for shareholders, a situation which is opposite to, for example, the mutual fund market, where the underlying market is efficient. This difference between listed real estate companies and mutual funds leads to a different principal-agent relationship, and may have consequences for the role of alternative governance mechanisms in the real estate sector.

The distinct characteristics of listed property companies lead to the question how the drivers of managerial compensation are structured and in which way governance mechanisms influence executive compensation practices herein. We study a sample of UK-based listed property companies for the 1998 – 2002 period, for which the drivers of executive compensation are divided in three groups; the first includes economic- and accounting measures of performance; the second group includes sector-specific variables and governance mechanisms; the last group consists of control variables. Having studied the level of executive compensation, we investigate the specific relationship between payments and performance, and how this relationship is influenced by various governance mechanisms.

Besides the unique characteristics of the listed real estate sector, research on executive compensation for the specific combination of the listed real estate sector in the United Kingdom is interesting because hitherto, the empirical evidence regarding executive compensation in the property industry has been limited to the United States. Therefore, this is the first study to allow a detailed comparison between compensation practices in a non-US property market and the documented evidence on executive compensation in the US REIT

sector. Furthermore, we elaborate on previous US-based research by simultaneously studying the influence of three groups of variables on managerial compensation, using more detailed data with respect to executive compensation and a broader spectrum of governance mechanisms. The United Kingdom is by far the most transparent of all European listed property markets, with property companies publishing a remuneration report in their proxy statement. The remuneration report has been published since disclosure rules in the United Kingdom were expanded, following the Greenbury (1995) and Hampel (1998) reports. It contains highly detailed information with respect to the composition and magnitude of executive pay, including details on executive shareholdings and stock options. Regarding the latter component of compensation, reporting requirements are even more stringent than those for US companies, allowing more in-depth study of the issue[1]. Our 1998-2002 sample period takes both the end of the booming 1990s and the recent downturn of the stock market into account.

The paper proceeds as follows. Section 2 summarizes the existing empirical research with respect to the relationship between executive compensation and company performance. We will present studies on compensation practices for corporations in general and, more specifically, for publicly listed real estate investment companies. Section 3 sheds light on the data used in the statistical analysis and presents descriptive statistics. Section 4 presents the methodology and results for the analysis of the drivers of executive compensation. In Section 5, we study the specific relation between pay and performance, using a sensitivity-approach. Finally, section 6 concludes the paper.

2. Existing Empirical Evidence

Research on the issue of executive compensation is broad and elaborate. The most influential, US-based paper is written by Jensen and Murphy (1990a). They find for the 1974 - 1986 period in a sample of 1049 companies that a $1000 increase in shareholder wealth leads to a $3.25 increase in CEO wealth. Executive stock ownership accounts for most of this pay-performance sensitivity. They explain the low sensitivity of CEO compensation to shareholder wealth by the fact that bonuses, which are relatively insensitive to stock

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[1] Conyon and Murphy (2000) document that, although the US reporting requirements are generally more stringent than UK requirements, data on prior grants are more detailed in the United Kingdom.

performance, represent on average 50% of CEO salary. The level of executive pay turns out to be mostly driven by company size, proxied by market capitalization. Size also influences the compensation-performance sensitivity, which is higher for smaller firms and lower for large firms. Hall and Liebman (1998) use in a 1980 – 1994 time frame several different pay-to-performance measures. This difference in methodology might explain the difference in findings: when dividing the sample in percentiles according to performance, they find that compensation is strongly positively and significantly related to performance. Moreover, levels of compensation as well as the pay-performance elasticity have strongly increased over the sample period, which is almost totally due to the increased use of stocks and stock options in incentive schemes. Main and Bruce (1996) study executive compensation in the United Kingdom, for the 1981 – 1989 period. They include and elaborate on executive stock options and find an influence of performance on executive compensation, which is more significant and stronger than found in former research. They explain this increased sensitivity by the effectiveness of executive stock options. Other variables investigated are size, proxied by turnover, and relative performance, proxied by sector performance. The pay-size relationship is broadly consistent with findings in US-based research. Sector performance is not significantly related to executive compensation, which is consistent with anecdotal evidence that the design of compensation schemes reflects absolute rather than relative performance.

For continental Europe, Crespí-Gladera and Gispert (2003) use a sample of 113 Spanish companies over the 1990 – 1995 period. They broaden the previous pay-performance research by including leverage and ownership concentration as alternative governance mechanisms. A positive relationship between pay and performance is found, and moreover, the authors find evidence on a negative relationship between industry performance and board remuneration. Ownership concentration proves to be an efficient alternative monitoring mechanism, with a positive relationship between pay-performance elasticity and ownership concentration, but leverage is not proved to be significantly useful as an alternative governance mechanism.

Zhou (2000) studies the elements determining executive pay for the Canadian market. Over the 1991 – 1995 period, almost the same pay-size relationship is found as in comparable studies concerning the US, UK, and Japan. Moreover, the pay-performance sensitivity of $5.93 increase in executive wealth per $1000 increase in shareholder wealth is almost equal to findings by Jensen and Murphy (1990a). The similarity in results compared to previous

research in the US can be explained by the heterogeneity of the markets and the close institutional linkages.

Research with respect to executive compensation in the real estate sector is limited and mainly focused on the US-REIT market. In one of the first sector-specific studies, Chopin, Dickens and Shelor (1995) hypothesize that revenues and unexpected profit positively influence executive compensation. They find that sales have a significant positive impact on compensation, whereas there is little effect of unexpected profit on executive pay. More research is performed by Pennathur and Shelor (2002), who study the determinants of executive compensation in the US REIT industry, using a time frame of seven years (1992 – 1999). They examine pay changes rather than pure compensation levels and find no significant relationship between company performance and executive payments prior to 1997, but after that period, stock return has a positive influence on executive remuneration. However, the measure of earnings-per-share is not related to raises in executive compensation. An industry-specific variable is introduced, predicting that the change in real estate investment will lead to an increase in executive compensation. This variable is significantly and positively related to compensation. Scott, Anderson, and Loviscek (2001) add the sector-specific variables of property type to the model. They document that size is more important than performance in explaining total compensation, and moreover, the type of property investment significantly influences total compensation of REIT executives: industrial and healthcare REITs are associated with higher levels of executive compensation.

As board structure and other governance mechanisms are supposed to restrict excessive executive compensation, Ghosh and Sirmans (2003b) hypothesize that a well-structured governance system should lead to better monitoring and thus a more efficient compensation structure. The governance variables they analyse include board size, the number of outside directors, CEO position in the board, and average executive age. They find for the 1998-2000 period that, contrary to other research, executive compensation is negatively related to stock performance. This finding is explained by reasoning that during periods of stock market gains, compensation in the form of stocks and options is preferred over cash compensation, leading to a short-term negative relation between performance and compensation. The influence of size on compensation is significant and positive. Board composition turns out to be an important determinant of executive compensation: a large board size and the inclusion of old directors leads to higher levels of executive compensation.

Furthermore, the presence of outside directors on the board is positively related to the level of executive compensation, but outside blockowners have a negative influence on executive compensation.

We contribute to the existing research in several ways. First, executive compensation in the UK real estate sector has not been subject to research before. As listed companies in the United Kingdom publish a detailed remuneration report in their proxy statement, we are able to get detailed data on the different elements of executive compensation, especially on previously granted executive stock options. This transparency allows for an in-depth study of executive compensation. Second, the richness of our dataset enables us to use a broad range of different variables to explain executive pay, which yields a complete picture of the drivers of executive compensation. Not only the influence of performance and size measures, but also the influence of various governance mechanisms, board structure, and sector-specific variables are studied. Third, the 1998 – 2002 time period enables us to get insight in the impact of the rise and fall of the stock market at the end of the millennium. Finally, we broaden the study of the determinants of the level of executive compensation, by studying the pay-performance sensitivity and its behaviour under the influence of different governance variables.

3. Data

In this section we provide an overview of the sample, which is derived from the listed property industry in the United Kingdom, and of executive compensation practices therein. To do that, we use three distinct sources of data. The main sources of data are the company proxy statements, providing a detailed executive remuneration report, information concerning director's interest, governance mechanisms, specifics about investment strategy, and the property portfolio. The second source of data is the GPR Handbook of European Property Companies. Global Property Research published this data annually (last edition 2002 – 2003), covering the largest publicly listed property companies in 15 European countries. The GPR Handbook includes financial statistics, management information, and information concerning investment strategy and property acquisitions (retrieved from www.gpr.nl). From these books, we retrieved financial statistics and information concerning investment strategy. The third

source of data is Thompson's DataStream, presenting financial information, such as stock performance, market capitalization, and company leverage.

The sample consists of listed property companies in the United Kingdom using a 1998 – 2002 time frame. We started with the universe of all British property companies listed in the GPR Handbook from 1998 to 2002, which included 45 companies. Companies were excluded from this sample if (a) they had not been listed on a continuous basis since fiscal year 1998, or (b), their annual reports were not available for analysis, for example due to problems in contacting companies. This leads to a sample of 34 companies, which are listed in Panel A of Appendix A. Exclusion of companies going bankrupt or being delisted during the sample period might lead to a survivorship bias. However, for the research at hand, the survivorship bias does probably not influence the results much, as we focus on compensation as a dependent variable rather than performance. Performance is only relevant as an explaining variable. Another potential sample bias might be that we only have data on transparent companies, which are easily accessible with respect to annual reports and other information. However, as only a small part of the total sample[2] is excluded due to non-availability of information, this bias does not have a significant influence.

The descriptive analyses of the data yield interesting insights. With respect to investment focus, Panel B of Appendix A shows that the majority of the companies in the sample invest in property in the retail and office sector, and that 53% of the companies in the sample invest in more than one sector. Companies investing in more than two sectors represent 15% of the sample. International diversification of UK property companies is rather low: only 13% of the companies in the sample invest more than 25% of the portfolio in countries other than the United Kingdom. These findings are in line with Boer, Brounen and Op't Veld (2002), who find that European real estate companies prefer investing locally to investing internationally and rather diversify on sector.

Table 1 shows the percentages of firms that adopted different incentive plans over time. Initially, bonus plans were the most popular incentive payment, but executive stock options gained heavily in importance and are used in most companies in 2002, other long-term incentives, such as share appreciation rights (SARs) and restricted share plans, are not as

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[2] The initial sample of 45 companies is reduced to 34 companies, due to the lack of information on 6 companies and non-continuous listing of 5 companies.

commonly used as a cash bonus or stock options, but still, almost half of the companies in the sample use stock-based compensation as a managerial incentive. The last column of Table 1 shows that the level of total compensation grew strongly during the sample period, which was mainly due to the influence of stock options.

[Insert -Table 1- about here]

The development of the compensation structure is represented in Figure 1. Base cash compensation, including benefits, increased only slightly over time. The effects of the downturn in the stock markets become clear in fiscal year 2002; the total level of executive compensation decreased and the relative influence of executive stock options on total compensation also decreased. The decrease in value of stock options is not only caused by depreciating stock prices, but also by the decreasing number of stock options issued. The diminishing popularity of stock options and the increasing importance of stock-based compensation in compensation schemes is a phenomenon earlier found by Conyon and Murphy (2000). Contrary to this UK-specific development, they find that in the United States, stock options have gained in relative importance.

[Insert -Figure 1- about here]

Table 2 presents a summary of descriptive statistics. It contains the main variables only. The yearly average of executive base salary is $296.8[3], which is comparable to the average level of base compensation found by Pennathur and Shelor (2002), who find a value of $301.5 for 1999 for the US REIT sector. The value of cash compensation, including bonus, is with $509.7 only slightly lower than the $525.9 found by Ghosh and Sirmans (2003b) for the year 2000. The value of stock options is also almost equal to findings in US-based research. The similarity in levels of executive compensation between the US REIT sector and the UK property sector is remarkable, as Conyon and Murphy (2000) documented a significant difference between US and UK levels of executive compensation in 1997. The process of globalisation and the homogeneity of the sector (listed real estate sector) under investigation may be an explanation. The level of average bonus payments does not exceed the average level of base salary, which is consistent with recommendations of best practices

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[3] Converted to US$ using the exchange rate at 01/01/2000 of 0.619£/$

in corporate governance, as published by some governments and, more recently, the EPRA. On the other hand, the average value of stock options exceeds the value of average base level compensation by far.

The variables representing company size - market capitalization and turnover - are highly skewed to the right, as the means are respectively 3 and 2 times larger than the median. The average firm size is significantly smaller than the average firm size found in comparable, but US-based research. For example, for the year 2000, Ghosh and Sirmans (2003b) find an average turnover that is twice as large as the turnover in our sample. The last descriptive statistic of interest is the market-to-book ratio, which is below 1 on average, indicating that the sample traded on average on a discount during the sample period.

[Insert -Table 2- about here]

4. The level of executive compensation

In the first part of our study, we focus on the influence of different performance measures on the level of executive compensation by performing simple regressions. The average level of executive compensation is measured using three variables. To calculate executive compensation, the average remuneration of the executive directors including the CEO is chosen, which avoids the problem of different board sizes. REMCASH is the sum of base salary, bonus, benefits, and pension payments. REMLT is the sum of grants of executive share options, compensation in shares and long-term cash incentives, where options are valued using Hull's (2002) DerivaGem, a program based on the Black-Scholes option-pricing formula. All options granted are valued and revalued at the end of each fiscal year, and if options are exercised during the year, profits on exercise are added up. Stock-based compensation is valued by calculating the yearly increase in value of incentive-based executive shares. The detailed information provided by the remuneration report enables us to get deep insight in compensation practices and to make exact calculations. REMTOT represents the sum of REMCASH and REMLT.

In order to measure performance, three variables are introduced. All of the variables are introduced in a current and a lagged term to account for the influence of past performance

on current compensation[4]. First, the increase in stockholder wealth (PERF) is calculated in a way similar to for example Murphy (1999) and Conyon and Leech (1998), using continuous returns including dividend. The Jensen α represents the second performance measure, calculated with respectively the GPR 250 Index and the FTSE100 Index as benchmark. The use of two benchmarks, sector as well as market performance, yields deeper insight into the determinants of the level of executive compensation. All variables are retrieved from DataStream; the risk-free rate r is approximated by the 3-month UK T-bill rate. The third measure of performance is an accounting measure, represented by earnings per share (EPS). An accounting measure of performance might be able to explain executive compensation better than an economical measure of performance, as it is less affected by exogenous factors. Pennathur and Shelor (2002) do not find a significant relationship between EPS and executive compensation for the US REIT sector, which leads to the question whether we can find evidence for the EPS-compensation relationship in our UK-based sample, as we expect that executive bonuses are often dependent on a company's profit instead of share performance. Finally, sector performance (SECT) is included as we expect sector performance to negatively influence executive compensation. SECT is proxied by the GPR General UK Index.

We introduce four control variables. The first control variable is size, which we proxy by the natural logarithm of market capitalization (CAP), and the natural logarithm of total sales (SAL). The second control variable is the debt-to-equity ratio (DEBT), measured by dividing the book values of total debt by total assets. Third, the market-to-book value (MTB) is measured by dividing the market capitalization of a company by the equity book value of a company. Fourth, year dummies (YEAR) are included to capture time-varying effects, with year 1998 as the base year.

To get a first insight in the determinants of executive compensation, Appendix B presents the correlation matrix for the dependent variables of executive compensation and the independent variables. The positive correlation between measures of performance, size, and compensation are in line with expectations. These relationships will be analysed further in the regression results. The performance of the sample seems to be unrelated to the performance of the sector benchmark, as correlations between stock performance and sector performance are close to zero. Moreover, sector performance is significantly correlated to the year dummy,

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[4] Zhou (2000) and Jensen and Murphy (1990a) document a significant positive influence of lagged performance on the current level of executive compensation.

whereas the performance of the sample is robust against the influence of macro-economic factors captured by the year dummies. This can be explained by the different size of the sample and the benchmark, the first not being a perfect representative of the latter. Lastly, companies with a high debt-ratio show a slightly negative relation with performance, which might be due to the burden of debt-service.

Table 3 presents the results of the simple regressions between the independent variables and the elements of executive compensation. The economic measures of performance are all positively related with executive compensation. The relationship between performance measures and long-term compensation yields the most significant results, indicating strong sensitivity of long-term compensation to market movements. This finding is in line with Murphy (1997), who shows that the link between pay and performance is the strongest for stocks and stock options. The Jensen α, measured over the FTSE100, shows a strong explaining power, both in the current and lagged term. This explaining power is higher than performance measures such as stock performance and Jensen α (GPR), which might indicate that the market benchmark rather than the sector benchmark determines the level of executive compensation. The accounting measure earnings-per-share is significantly related to executive compensation, a relationship that Pennathur and Shelor (2002) could not prove in their study. The result is in line with expectations that bonuses are based on accounting rather than economic measures.

The control dummy year clearly reflects the trend in executive compensation, as base executive compensation and the year 1999 are negatively correlated and afterwards, base executive compensation is positively related to the year dummy. Our findings are in line with Ghosh and Sirmans (2003b) who also find a negative relationship between compensation and the year 1999 and a positive relationship hereafter. The consensus in the literature predicts a positive influence of company size on executive compensation. Our results are in line with this prediction, as the influence of company size on the level of executive compensation is positive and significant. However, when analysing the relationship between market capitalization and compensation in more detail, we find a new and surprising asymptotic relationship, captured by the interaction term $(CAP)^2$. This finding indicates that executive compensation quickly increases in small companies, but for executives in large companies, this increase is much weaker. The relationship between the other proxy for company size, sales, and executive remuneration is positive and linear.

The regression results with respect to the relationship between debt-ratio and executive compensation do not yield significant results, which is in line with Ghosh and Sirmans (2003b) who do not show a significant relationship between the debt-to-equity ratio and the level of executive compensation. In order to get a better insight in the influence of the debt-ratio on compensation, we divide the sample in quartiles according to the debt-ratio. The results indicate that the different elements of compensation are positively related to the debt-ratio, however, long-term compensation accounts for most of the difference. Although this might indicate that debtholders are less efficient in monitoring than other shareholders, which is in line with findings of Crispi-Gladera and Grispert (2003), another explanation may be that debtholders prefer to compensate in non-cash form in order to save the available cash flow for debt service. The last control variable is the market-to-book ratio, which is positively and significantly related to the level of total compensation, which means that growth companies tend to compensate more generously than value companies.

[Insert -Table 3- about here]

Following Pennathur and Shelor (2002) and Scott, Anderson and Loviscek (2001), we include real estate-specific variables in our study. An internationalisation dummy (INT) is introduced, being 1 if a company invests internationally, and 0 otherwise. To qualify as international, a company has to invest at least 25% of the portfolio in one or more foreign countries. The property types invested in are categorized by: office (OFFICE), retail (RETAIL), residential (RES), industrial (INDUS), healthcare (HEALTH), hotels (HOTEL) and other (OTHER). These variables are retrieved from the company's proxy statement and are introduced in the model as dummies. Geographical investment focus is represented by GEODIV, being 1 for diversifying property companies, and 0 otherwise. A company qualifies as diversifying if it invests in more than one geographical area. SECTORDIV represents the dummy variable for sector diversification, being 1 if a company invests in more than one sector, and 0 otherwise. A focus on high- or low-quality real estate investments is defined by the variable QUALITY. Whether a company invests in high or low quality property can be assessed though analysing the proxy statements of a company, and by explicit managerial statements with respect to corporate focus on quality.

Besides sector variables, we include a number of structure variables, which were also used by Ghosh and Sirmans (2003b). Among others, we include a variable representing the percentage of shares owned by executives (SHRDIR). This is measured by the average percentage of shares owned by the executives. The second variable is the relative proportion of outside directors in the board (OUTS). Ownership concentration among shareholders (BLOCK) is measured by the calculating the percentage of shares owned by the top-five largest shareholders. If the CEO of a company is also the chairman of the board, a binary dummy (CEOOWN) is introduced in the model. We add a dummy for the presence of institutional investors among shareholders (INSTI). This variable is 1 if institutional investors are present amongst shareholders.

The correlation matrix in Appendix B indicates that investing in industrial property is positively correlated to the different measures of performance, whereas retail property underperforms, with slightly negative correlations to performance. The first result is consistent with the Deutsche Bank's UK Property Outlook (2002). Diversifying companies mainly invest in low-profile property, indicated by the positive correlation of quality, and geographic and sector diversification. Companies diversifying geographically prefer residential property and companies diversifying per sector prefer office and retail property. Diversifying companies slightly underperform non-diversifying companies. Finally, the alternative governing mechanisms, such as institutional shareholders show some distinct correlations within the sample. Institutional investors preferably invest in companies focussing on one region and on high-quality property. Moreover, there is a negative correlation between the presence of institutional investors amongst shareholders and the CEO being the chairman of the board. This might indicate the monitoring power of the institutional investors, as the combination CEO-chairman is negatively related to all performance variables. Share blockholders seem to be present in the smaller firms rather than large firms, as the correlations between size and the total percentage of shares hold by the five largest blockholders are large and negative. This observation can be explained intuitively by the fact that in companies with small capitalization, it is easier to hold a larger percentage of shares.

Panel A of Table 4 provides the regression results. The relationships between governance variables and performance are intriguing. Large stockholders seem to be efficient in governing executives, as the percentage of shares hold by the five largest shareholders is negatively related to executive compensation. This finding is in line with Ghosh and Sirmans

(2003b). On the other hand, the presence of institutional investors is positively related to executive compensation, which may be explained by the preference of institutional investors for incentive-based compensation, encountering a rather large increase in value during the end of the 1990s. Moreover, Webb, Beck and McKinnon (2003) state that institutional investors are less efficient in monitoring than is widely assumed. In line with Ghosh and Sirmans (2003b), we question the functionality of outside directors as a monitoring mechanism, as the number of outside directors is significantly and positively related to all variables representing executive compensation. This leads to the assumption that outside directors are not more efficient in monitoring executives than inside directors. We find that in a situation where the CEO is also chairman of the board, executive compensation is lower than in the case where the task of CEO and chairman are separated. This finding is counterintuitive, as the dual role of the CEO creates the opportunity for abuse of power, and consequent higher compensation. The opposite effect we find may indicate that stakeholder monitoring becomes more intense when the CEO has a dual role, leading to lower compensation.

Executive stockownership is positively related to long-term compensation, which can be explained by the direct link between stocks and company performance. The increase in value of stocks during the end of the 1990s lead to a direct increase in the value of executive stock holdings. However, the significant positive relationship between CEO stock ownership and cash compensation is interesting. This might either indicate that executive stockownership triggers better managerial performance and consequently higher compensation, or that increase in executive stock ownership leads to more executive power in the board and consequently higher compensation.

[Insert -Table 4- about here]

With respect to the regression of real estate-specific variables on compensation, we find interesting results. Panel B of Table 4 shows that investing in the residential sector leads to significantly lower levels of compensation, while investment in retail property is positively related to cash compensation. Investment in industrial property is negatively related to the levels of cash and total compensation, but investment in this sector is significantly and positively related to long-term compensation. Our findings are not in line with the performance of the respective sectors, but correspond with the general view of the residential and industrial sector being 'non-glamour' investments, leading to standard- or below

compensation levels. On the other hand, the retail sector is a more 'glamorous' and speculative investment, leading to higher compensation levels. Diversification of investments leads to lower compensation levels, which is indicated by the negative relationships between the variables representing diversification and the compensation variables. Intuitively, we can explain this relationship by combining the academic evidence that diversifying companies underperform non-diversifying companies and the positive relationship between performance and the level of executive compensation.

The individual regression results are used to estimate an optimal model to explain the level of executive compensation. Table 5 presents the results of the multiple OLS-regressions. Model 1 explains the level of base compensation, model 2 explains long-term compensation and model 3 explains the level of total compensation. The explaining power of the models is quite high, with an R^2 varying from 0.58 for model 1, to 0.60 for model 3. These values are higher than found in comparable studies by Scott et al. (2002), Ghosh and Sirmans (2003b), and Zhou (2000), who find R^2s of 0.41, 0.27 and 0.45, respectively, for their models explaining executive compensation. In all models, the influence of performance on executive compensation is reflected in the variable earnings-per-share for cash compensation and stock performance for long-term and total compensation. This indicates that sample outperformance over the market and sector performance, measured by Jensen's α, are less powerful in explaining the level of executive compensation than absolute performance. This finding is consistent with expectations, as Main et al. (1996) document that absolute rather than relative stock performance is most important in explaining the level of executive compensation.

[Insert -Table 5- about here]

5. The pay-performance sensitivity

Most of the existing literature with respect to executive compensation focuses on the relationship between executive pay and company performance. In the previous section we found a positive influence of the different measures of performance on the level of executive compensation. However, to get a deeper insight in the pay-performance relationship, we will examine the influence of performance on changes in executive payments. This methodology is in line with Pennathur and Shelor (2002), Jensen and Murphy (1990a), Zhou (2000) and

others, who find that a model measuring changes has advantages in capturing factors which influence the pay-performance relationship and remain over. There is no consensus in the literature yet with respect to the appropriate model specification; Coughlan and Schmidt (1985) and Gibbons and Murphy (1998) prefer the elasticity specification, whereas Jensen and Murphy (1990a) use the sensitivity approach. Zhou (2000) includes both model specifications in his study[5]. The different models yield quite different results, but neither the sensitivity nor the elasticity approach strictly dominates the other. We follow the sensitivity approach, as this method enables us to add executive shareholdings to the pay-performance sensitivity, in order to get a complete measure of how performance is related to executive compensation. Executive shareholdings are directly related to shareholder wealth and represent the most powerful link between performance and executive wealth. The model specification is as follows:

$$(1) \qquad \Delta(\text{Compensation})_t = \alpha + \beta\, \Delta(\text{Shareholder Wealth})_t + \varepsilon$$

where $\Delta(\text{Compensation})$ is the annual change in cash or long-term compensation, $\Delta(\text{Shareholder Wealth})$ is defined as the rate of return realized by shareholders, r_t, multiplied by the company market value at $t\text{-}1$, and ε represents the error term.

Panel A and B of Table 6 present the estimated pay-performance sensitivities for the whole sample and for small firms and large firms respectively. Besides the two individual sensitivity measures, the average executive stockholdings are estimated and total sensitivity is calculated. The sensitivity of cash compensation to shareholder wealth β equals 0.022; for every £1000 increase in shareholder wealth, the cash compensation paid to the executives increases with 2.2 pence. This value is comparable to findings by Murphy (1997), who documents βs ranging from 0.008 for the industry sector to 0.073 for the utility sector in the 1990-1996 time period. Zhou (2000) also includes the lagged increase in shareholder wealth in the model and finds a β of 0.08 for the Canadian market in the 1994-1996 time period, slightly higher than we find in our sample. The sensitivity between long-term compensation and shareholder wealth has a β of 0.357. This value has a higher significance and is much stronger than the sensitivity of cash compensation to performance, a finding that is in line with the consensus in the literature on pay-performance sensitivity, stating that long-term compensation is paid in the form of options and stocks, which are closely linked to stock

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[5] Rosen (1992) documents the differences between all models.

performance. The comparison between small and large firms indicates that the pay-performance sensitivity is stronger and more significant in smaller firms, a finding which is consistent with Jensen and Murphy (1990a) and Zhou (2000). They find in the sample of their respective studies that small rather than large companies drive the pay-performance sensitivity. The inverse relationship between size and the pay-performance sensitivity may show that large firms encounter problems in bridging the agency gap through alignment of interests of managers and owners. On the other hand, the absolute values of changes in market capitalization of large companies are usually so large that they ensure significant changes in executive wealth. Furthermore, in line with expectations, executive shareholdings are relatively higher in small companies.

The total pay-performance sensitivity can be calculated by adding executive shareholdings to the pay-performance sensitivity. For small firms, we find that a £1000 increase in shareholder wealth leads to a £3.8 increase in executive wealth. This sensitivity is slightly higher than the 3.25 found by Jensen and Murphy (1990a). However, the average company size in their sample is much higher and their data is almost 20 years old. As the pay-performance sensitivity decreases with company size and has increased over time, the pay-performance sensitivity we find seems to be relatively low. This is in line with Conyon and Murphy (2000), who document a higher pay-performance sensitivity for the United States than for the United Kingdom.

Panel C of Table 6 presents the pay-performance sensitivities over time. The fluctuations of the stock market during the sample period are reflected in the changing signs of the coefficients. In the years 1999 and 2000, the well-performing stock market is positively related to the increases in cash compensation. However, during the downturn of the stock market in 2001 and 2002, cash compensation remains stable, which results in a negative coefficient. Executive shareholdings decrease over time, which may be due to new share issues and consequent dilution of executive stock interest.

[Insert -Table 6- about here]

In Table 7, we present the regression results on the influence of different governance mechanisms on the pay-performance sensitivity. Ownership concentration, which is the amount of shares hold by the five largest shareholders, is positively related to the cash

compensation-performance sensitivity. This relationship is in line with prior evidence documented in section 4, where we find that blockholders act like an efficient alternative monitoring mechanism. In section 4, we also found evidence that the presence of large blockholders negatively influences the level of long-term compensation. Consequently, Table 7 shows that the presence of large shareholders negatively influences the long-term pay to performance sensitivity. These findings indicate that holders of large blocks of shares indeed act as active monitoring mechanisms, which is in line with advice stated in most governmental publications concerning corporate governance.

The efficiency of outside directors on the board was not documented in the first part of our research. However, we find evidence on increasing compensation-performance sensitivity when the number of outside directors on the board increases. The preference of outside directors for long-term incentivisation turns out to provide an efficient link between pay and performance. Our findings confirm that board structure is important as a part of corporate governance, which is similar to findings of Tufano and Sevick (1997) for the US mutual fund sector and of Del Guercio et al. (2003) for US closed-end investment companies. The evidence is in line with regulations introduced by the SEC in 2001, emphasizing the importance of director independence; various governments in Europe later followed these regulations.

The presence of debtholders is positively related to the long-term compensation-performance sensitivity, which indicates that debtholders act as an efficient alternative governing mechanism. This finding can be explained intuitively, because the real estate sector is known for its relatively high level of debt, increasing the necessity for debt-holders to take over the monitoring task traditionally performed by shareholders.

The last governance mechanism of interest is the presence of institutional investors amongst shareholders. The results indicate that the sensitivity between long-term compensation and performance increases with institutional shareholding. The relationship is in line with earlier found evidence: the presence of institutional investors leads to higher levels of long-term compensation, and long-term compensation has generally a strong link with corporate performance. The role of institutional investors as an alternative monitoring mechanism is of increasing importance and stimulated by governance publications of governments.

[Insert -Table 7- about here]

6. Summary and Conclusion

This paper studies the drivers of executive compensation in the UK real estate sector and the influence of governance mechanism on compensation practices. The UK real estate sector lends itself ideally for research, as the publication of remuneration reports in the proxy statements, containing amongst others detailed information on previously granted options, allows us to get a clear and full insight in compensation practices. Furthermore, the 1998-2002 sample period captures both the end of the flourishing 1990s and the beginning of the downturn in economic markets. Besides performance measures, we introduce corporate governance and sector-specific variables to explain compensation. Moreover, we provide evidence on the influence of governance variables on the relationship between pay and performance.

Consistent with previous research, we find that size is the most important variable in explaining executive compensation. However, we document that the relationship between size and compensation is not linear but asymptotic. This implicates that executive compensation quickly increases in small companies, but for executives in large companies, this increase is much weaker. Using several different measures of performance, current and lagged stock return turn out to have the strongest power in explaining the level of executive payments, whereas Jensen's α and earnings per share lose their strong individual explaining power in the complete model. We document that a £1000 increase in shareholder wealth leads to a £3.8 in executive wealth. This sensitivity is slightly higher than the value found by Jensen and Murphy (1990a), but the market capitalization of their sample was significantly higher and their study took place more than 20 years ago. Considering that the pay-performance sensitivity increased over time and decreases with company size, the sensitivity we find in our study seems relatively low. However, this is in line with Conyon and Murphy (2000), who documented a difference in pay-performance sensitivities between the United States and the United Kingdom.

Furthermore, we test for the influence of different governance mechanisms on executive compensation. We find evidence on the preference of debtholders, institutional investors and outside directors for long-term incentivisation. On the one hand, this leads to higher long-term compensation levels during a period of booming stock markets, but on the other hand, this results in a relatively strong pay-performance sensitivity. The presence of large shareholders amongst investors proves to be an efficient alternative monitoring mechanism, as the level of compensation decreases and the pay-performance sensitivity increases with the amount of shares owned by the five largest stockholders. In general, alternative governance mechanisms seem to behave like active monitors, a development which has been taking place during the last years. The change in monitoring behaviour is due to, for example, governmental advice and regulations as stated in publications on 'best practices' in corporate governance. Moreover, the public discussion on appropriate managerial behaviour has also increased the awareness of alternative governance mechanisms on malpractices in corporate environments.

The real estate-specific variables introduced in our model yield interesting results: all forms of diversification lead to lower levels of executive payment, but investing in high quality property is positively related to compensation. Executives of companies investing in the 'glamorous' retail and office property earn more than their colleagues investing in 'non-glamour' industrial and residential property.

As institutional aspects differ per country, we suggest further research on the effects of institutional mechanisms on compensation practices in different countries. Furthermore, it may be interesting to study executive compensation practices in US REITs subject to the three groups of variables we used. Although all variables have been tested individually in various studies, hitherto there has been no study testing performance, sector and structure variables simultaneously. Finally, we suggest future research regarding the effect of compensation, governance mechanisms and real estate variables on corporate performance.

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Table 1. Incentive plans implemented (1998 – 2002)

Year	Bonus %	LTIP %	Options %	Compensation *£1000*
1998	71.4	35.3	65.0	444.0
1999	76.5	41.2	82.4	668.1
2000	79.4	44.1	82.4	919.2
2001	88.2	44.1	91.2	966.9
2002	88.2	47.1	92.0	940.1

Notes: In columns 2 through 4 of Table 1, statistics are provided on the percentage of companies that implemented an incentive plan over time. Bonus represents the variable part of cash compensation, which is annually determined by the remuneration committee. LTIP are cash payments related to long-term incentive plans, and options represent option plans implemented. Compensation reflects the sample-average of total compensation per executive.
Sources: Annual Reports, DatasStream.

Figure 1. Structure of executive compensation over time (%)
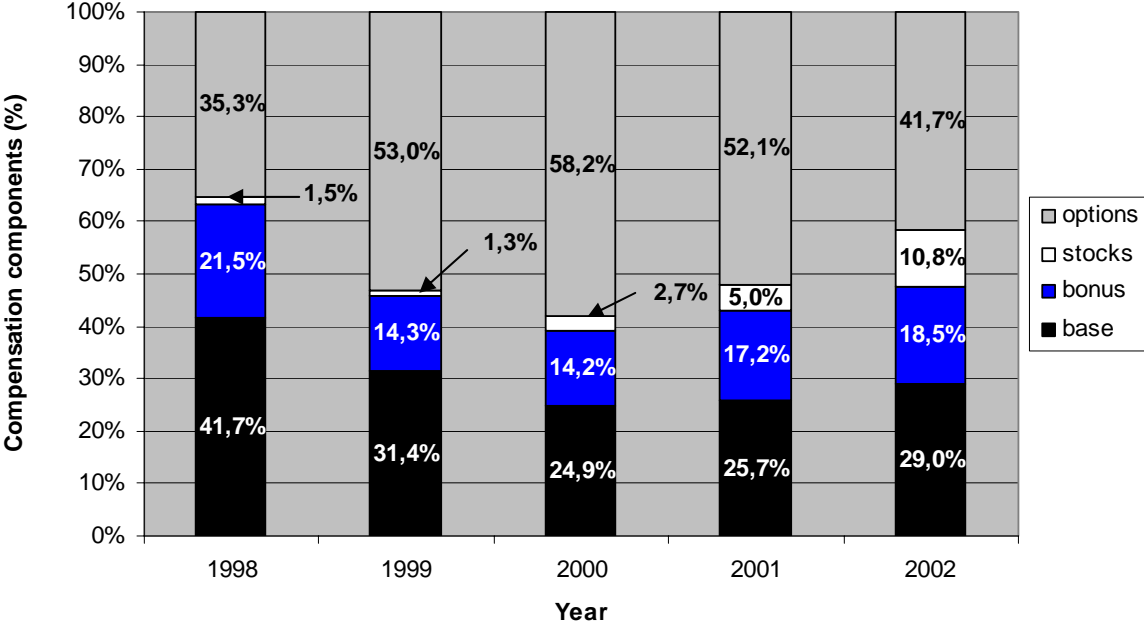
Notes: Figure 1 provides insight in the structure of executive compensation plans and the relative importance of its elements to total compensation over time. Base compensation includes base salary, benefits and pension plans. Bonus is the amount of annually determined cash bonuses. Stocks reflect the sum of stock-based long-term compensation, including share appreciation rights (SARs). The variable Options includes previously granted stock options, currently granted options, and profits on exercise.
Source: Annual Reports.

Table 2. Summary of descriptive statistics (1998-2002)

CEO pay variables	Median	Mean	SD	Min	Max
Salary (£1000)	184.1	183.5	77.6	38.6	381.0
Bonus (£1000)	69.1	131.5	225.5	0.0	1600.0
Benefits (£1000)	14.2	15.8	15.2	0.0	160.3
Pensions (£1000)	18.8	30.0	50.6	0.0	352.0
Stocks (£1000)	0.0	39.1	104.2	0.0	692.5
Options (£1000)	120.3	388.1	1131.4	0.0	8791.8
Salary/Total Cash (%)	56.1	58.1	20.7	14.5	100.0
Bonus/Total Cash (%)	22.3	23.3	19.3	0.0	83.4
Other/Total Cash (%)	11.3	12.4	10.2	0.0	50.0
LTIP/Total Cash (%)	0.0	6.2	11.9	0.0	149.0
Options/Total Cash (%)	35.2	88.6	220.6	0.0	1800.9

Firm variables	Median	Mean	SD	Min	Max
Sales (£m)	54.7	114.5	157.7	1.2	1025.6
Market value (£m)	218.5	617.4	1033.1	1.8	6163.1
Shareholder return (%)	15.4	13.4	26.7	-60.1	100.0
Earnings-per-share (£pence)	14.2	18.4	16.8	-50.7	86.5
Market-to-book ratio	0.75	0.82	0.4	0.4	2.3
Debt ratio (%)	48.0	48.6	15.3	0.0	90.0

Notes: Table 2 provides a summary of descriptive statistics. Salary, bonus, benefits and pensions are retrieved directly from the proxy statements. The value of stock-based compensation includes the value increase of restricted executive shares and share appreciation rights (SARs). Options are valued using the Black-Scholes option pricing formula plus gains made on exercise. Company size is represented by turnover and company market capitalization. Company performance is measured by continuous shareholder return (calculated using the formula: $\ln(p_t + div_t) / p_{t-1}$) where P and div are company share price and dividend respectively), and earnings-per-share (EPS). The control variables, leverage and market-to-book ratio, are retrieved from the GPR Handbooks.

Sources: Annual Reports, DataStream, Global Property Research.

Table 3. Performance and the level of executive compensation

A. Performance variables

	REMCASH log	REMLT log	REMTOT log
Jensen Alpha GPR250(α)$_t$	0.00	**1.61**	0.29
	(0.02)	(2.17)	(0.93)
Jensen Alpha GPR250(α)$_{t-1}$	0.01	0.84	0.34
	(0.24)	(1.00)	(0.99)
Jensen Alpha FTSE100(α)$_t$	0.37	**1.83**	**0.61**
	(1.74)	(2.81)	(2.27)
Jensen Alpha FTSE100(α)$_{t-1}$	0.31	1.18	0.49
	(1.42)	(1.68)	(1.71)
Share performance (PERF)$_t$	0.01	**1.46**	0.35
	(0.37)	(2.06)	(1.19)
Share performance (PERF)$_{t-1}$	0.21	1.44	0.51
	(0.85)	(1.85)	(1.59)
Sector performance (GPR)$_t$	0.00	-0,75	-0.28
	(0.03)	(-0.25)	(-0.22)
Sector performance (GPR)$_{t-1}$	1.08	1.18	0.75
	(1.14)	(0.39)	(0.62)
Earnings-per-share (EPS)$_t$	**0.32**	**0.60**	**0.34**
	(6.04)	(3.55)	(4.89)
Earnings-per-share (EPS)$_{t-1}$	0.00	**0.01**	0.01
	(-0.48)	(2.04)	(1.17)

B. Control Variables

	REMCASH log	REMLT log	REMTOT log
Year 99 (YEAR99)	-0.21	-0.11	-0,22
	(-1.49)	(-0.25)	(-1.18)
Year 00 (YEAR00)	0.01	0.13	0.12
	(0.57)	(0.19)	(0.66)
Year 01 (YEAR01)	0.21	0.46	0.28
	(1.48)	(1.01)	(1.50)
Year 02 (YEAR02)	**0.38**	0.35	0.35
	(2.69)	(0.78)	(1.91)
Capitalization (CAP)$_t$	**0.26**	**0.66**	**0.35**
	(9.38)	(7.15)	(10.27)
Capitalization^2 (CAP^2)$_t$	**0.01**	**0.05**	**0.03**
	(7.47)	(6.14)	(8.59)
Sales (SALES)$_t$	**0.29**	**0.59**	**0.34**
	(9.10)	(5.31)	(7.95)
Market-to-book ratio (MTB)$_t$	0.11	0.42	**0.46**
	(0.77)	(0.94)	(2.53)

Notes: Table 3 presents the results on the simple regression of performance and control variables on executive compensation. REMCASH includes base compensation, benefits, pension plans and cash bonuses. REMLT includes long-term incentives stocks and options. REMTOT is the sum of all compensation elements.
T-statistics are within parentheses.
Variables in **bold** are significant at the 5%-level.

Table 4. Sector and structure variables and the level of executive compensation

A. Structure variables

	REMCASH *log*	REMLT *log*	REMTOT *log*
CEO as chairman (CEOOWN)t	**-0.47** (-2.85)	**-1.88** (-3.70)	**-0.82** (-3.95)
No of independent execs (OUTS)t	**0.97** (2.46)	**3.95** (3.41)	**1.56** (3.13)
% of shares owned by five largest shareholders (BLOCK)t	**-1.51** (4.02)	-2.14 (-1.75)	**-1.63** (-3.33)
Institutional Shareholding (INSTI)t	0.16 (1.36)	**1.71** (4.86)	**0.48** (3.14)
Shares hold by executive (SHRDIR)t	**0.54** (2.40)	1.03 (1.47)	**0.57** (2.00)

B. Sector variables

	REMCASH *log*	REMLT *log*	REMTOT *log*
Investment focus (QUALITY)t High vs. low quality	0.15 (1.24)	**1.03** (2.78)	0.27 (1.78)
Diversification (GEODIV)t Local vs. diversified	-0.01 (-1.26)	**-0.02** (-4.21)	**-0.01** (-2.01)
Diversification (SECTORDIV) More than 1 sector	-0.14 (-1.21)	-0.24 (-0.67)	-0.18 (-1.23)
Internationalization (INT)t	**-0.38** (-2.14)	-0.57 (-1.03)	-0.43 (-1.89)
Sector (RETAIL)t	0.18 (1.48)	0.21 (0.56)	0.07 (0.44)
Sector (OFFICE)t	-0.09 (-0.65)	0.72 (1.77)	0.10 (0.57)
Sector (RES)t	-0.31 (-1.54)	**-3.00** (-5.04)	**-0.70** (-2.76)
Sector (INDUS)t	*-0.07* (-0.47)	*0.63* (1.34)	*-0.01* (0.18)

Notes: Table 4 presents the results of the simple regression between the structure and sector-specific variables and the level of executive compensation. REMCASH includes base compensation, benefits, pension plans and cash bonuses. REMLT includes long-term incentives stocks and options. REMTOT is the sum of all compensation elements.
T-statistics are in parentheses
Variables in **bold** are significant at the 5%-level.

Table 5. The model explaining executive compensation

		Model (1)	(2)	(3)
Intercept		**3,24**	-0,30	**3,11**
		(10.77)	*(-0.38)*	*(8.83)*
Share performance (PERF)t			**1,49**	0,23
			(2.88)	*(1.07)*
Share performance (PERF)t-1			**1,71**	0,34
			(3.09)	*(1.45)*
Earnings per share (EPS)t		0,071		
		(1.40)		
Geographical diversification (GEODIV)t				**0,00**
				(3.35)
Internationalization (INT)t				**-0,32**
				(-2.01)
Sector (RES)t		-0,25	**-2,37**	**-0,69**
		(-1.45)	*(-5.33)*	*(-3.12)*
Sectoral diversification (SECTORDI)t		**-0,20**		
		(-2.21)		
Shares hold by executive (SHRDIR)t		**0,46**		
		(2.62)		
CEO as chairman (CEOOWN)t		-0,24	**-1,95**	**-0,65**
		(-1.93)	*(-4.79)*	*(-3.84)*
% of independent execs in board (OUTS)t			**2,11**	**1,00**
			(2.23)	*(2.44)*
Institutional Shareholding (INSTI)t			**0,65**	0,19
			(2.33)	*(1.64)*
Year 01 (YEAR01)		**0,25**		**0,31**
		(2.41)		*(2.41)*
Year 02 (YEAR02)		**0,44**		**0,38**
		(3.96)		*(2.93)*
Capitalization (CAP)t	log	**0,77**	**1,01**	**0,75**
		(6.11)	*(3.12)*	*(5.30)*
Capitalization2 (CAP2)t	log	**-0,05**	-0,06	**-0,05**
		(-4.40)	*(-1.73)*	*(-3.31)*
R^2		0,58	0,57	0,60
F		**20.05**	**25.20**	**18.99**

Notes: In Table 5, the complete models explaining executive compensation are presented. These models are estimated using multiple regression analyses. Model (1) includes the drivers of the level of cash compensation. Cash compensation is the sum of base salary, benefits, pension plans and cash bonuses. Model (2) presents the drivers of long-term compensation. Long-term compensation includes the total value of option plans and stock-based compensation. In Model 3, we present the optimal combination of variables explaining the level of total compensation.

T-statistics are in parentheses

Variables in **bold** are significant at the 5%-level.

Table 6. The pay-performance sensitivity

A. All firms	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**55.70**	(4.39)	**110.93**	(2.21)		
Δ(Shareholder wealth)	0.02	(0.46)	0.36	(1.89)	1.37	1.75
R²	0.04		0.16			

B. Company size	*Small*					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**39.81**	(3.16)	32.87	(1.42)		
Δ(Shareholder wealth)	0.34	(1.00)	**2.04**	(3.24)	1.42	3.80
R²	0.12		0.38			
	Large					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**70.28**	(3.18)	182.11	(1.87)		
Δ(Shareholder wealth)	0.02	(0.32)	0.34	(1.30)	1.27	1.63
R²	0.04		0.16			

C. Years	*1999*					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	56.80	(1.42)	-53.31	(-0.59)		
Δ(Shareholder wealth)	0.56	(1.87)	**1.97**	(2.93)	1.23	3.76
R²	0.35		0.51			
	2000					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	38.21	(1.06)	245.42	(1.15)		
Δ(Shareholder wealth)	0.51	(1.05)	-4.55	(-1.59)	1.32	-2.72
R²	0.21		0.31			
	2001					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**59.28**	(3.94)	**165.66**	(2.14)		
Δ(Shareholder wealth)	-0.01	(-0.42)	**0.53**	(3.18)	1.16	1.68
R²	0.09		0.54			
	2002					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**43.25**	(2.04)	**125.10**	(3.26)		
Δ(Shareholder wealth)	-0.10	(-1.17)	0.19	(1.18)	0.65	0.74
R²	0.23		0.23			

Notes: Panel A of Table 6 presents the pay-performance sensitivity of the sample. The first part of the pay-performance sensitivity is the result of regressions between the increase in shareholder wealth and the increase in cash compensation. The increase in shareholder wealth is calculated by multiplying the return to shareholders at time *t* by the market value at time *t-1*. The increase in cash compensation equals the sum of increases in base salary, benefits, pension plans, and bonuses respectively. The second part of the pay-performance sensitivity equals the sensitivity between increase in long-term compensation and increase in shareholder wealth, where Δ(long-term comp.) is the sum of annual increase in the value of stock and option plans. The third part of the pay-performance sensitivity is the average inside executive stockownership, represented by SHRDIR. This variable is not estimated by means of regressions, but calculated using information stated in proxy statement. The total pay-performance sensitivity is the sum of the three individual sensitivities, presented as TOTAL.

In Panel B we document the pay-performance sensitivity for small and large companies respectively. Small firms include the firms with a market capitalization lower than the median. Large firms represent the companies with a market capitalization above the median.

Panel C presents the variance of the pay-performance sensitivity over time.

T-statistics are in parentheses

Variables in **bold** are significant at the 5%-level.

Table 7. The influence of governance mechanisms on the pay-performance sensitivity

A. Blockholders	*Low*					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	65.69	(4.25)	69.09	(1.78)		
Δ(Shareholder wealth)	-0.01	(-0.23)	**0.37**	(3.49)	1.26	1.61
R²	0.29		0.40			
	High					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**39.44**	(2.03)	156.10	(1.66)		
Δ(Shareholder wealth)	**0.57**	(2.63)	0.01	(0.06)	1.46	2.04
R²	0.31		0.11			
B. Outside directors	*Low*					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**40.86**	(3.57)	55.69	(1.49)		
Δ(Shareholder wealth)	**-0.11**	(-2.20)	-0.02	(-0.11)	0.94	0.81
R²	0.26		0.01			
	High					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**67.95**	(2.98)	160.05	(1.68)		
Δ(Shareholder wealth)	0.09	(1.23)	0.54	(1.75)	0.72	1.35
R²	0.15		0.22			
C. Debt-ratio	*Low*					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**65.12**	(5.40)	63.22	(1.75)		
Δ(Shareholder wealth)	0.03	(0.76)	0.24	(1.80)	1.06	1.33
R²	0.09		0.22			
	High					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	45.64	(1.99)	162.17	(1.68)		
Δ(Shareholder wealth)	0.01	(0.08)	0.51	(1.35)	1.63	2.15
R²	0.01		0.17			
D. Institutional investors	*No*					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**47.91**	(3.58)	49.03	(1.49)		
Δ(Shareholder wealth)	0.03	(0.57)	0.21	(1.94)	0.71	0.95
R²	0.08		0.27			
	Yes					
	Δ(REMCASH)		Δ(REMLT)		SHRDIR	TOTAL
Intercept	**60.20**	(3.25)	144.73	(1.89)		
Δ(Shareholder wealth)	0.02	(0.26)	0.49	(1.53)	1.58	2.09
R²	0.03		0.17			

Notes: Panel A of Table 7 presents evidence on the effect of stock block ownership (ownership concentration) amongst shareholders on the pay-performance sensitivity. Ownership concentration equals the sum of share interests of the 5 largest shareholders. High ownership concentration denotes the companies with an ownership concentration above the median, whereas low ownership concentration includes the companies under the median. The pay-performance sensitivity consists of three parts. The first part is the result of regressions between the increase in shareholder wealth and the increase in cash compensation. The increase in shareholder wealth is calculated by multiplying the return to shareholders at time *t* by the market value at time *t-1*. The increase in cash compensation equals the sum of increases in base salary, benefits, pension plans, and bonuses respectively. The second part of the pay-performance

sensitivity equals the sensitivity between increase in long-term compensation and increase in shareholder wealth, where Δ(REMLT) is the sum of annual increase in the value of stock and option plans. The third part of the pay-performance sensitivity is the average inside executive stockownership, represented by SHRDIR. This variable is not estimated by means of regressions, but calculated using information stated in proxy statement. Total sensitivity of executive wealth to shareholder wealth is the sum of the three individual sensitivities, represented by TOTAL.

In Panel B, the sample is divided in two parts according to the number of outside directors on the board. This provides insight in the relationship between the number of outside directors on the board and the pay-performance sensitivity. Panel C presents the results for the pay-performance sensitivity when the sample in divided in a part above and under the median, according to the debt-ratio. Finally, Panel D provides insight in the effectiveness of institutional investors as an alternative governance mechanism, with regressions performed for companies where institutional investors are present amongst shareholders and for companies without institutional investors.

T-statistics are in parentheses

Variables in **bold** are significant at the 5%-level.

Panel A: Sample derived from the UK universe of the GPR General 250 Index

A&J Mucklow Group
Benchmark Group Plc
British Land Company Plc
Brixton plc
Canary Wharf Finance Plc
Capital & Regional plc
Chelsfield Plc
CLS Holdings Plc
Countryside Properties
Derwent Valley Holdings Plc
Development Securities Plc
Freeport plc
Great Portland Estates Plc
Grosvenor Holdings
Hammerson Plc
Helical Bar Plc
International Real Estate
Land Securities Plc
Liberty International plc
London Merchant Securities
London & Associated Securities
Marylebone Warwick Balfour Group Plc
Mckay Securities Plc
Merivale Moore
NHP Plc
Pillar Property Plc
Quintain Estates & Development Plc
Rugby Estates
Shaftesbury Plc
Slough Estates Plc
St. Modwen Properties Plc
Stockbourne
Warner Estate Holdings Plc
Workspace Group Plc

Appendix A (Continued).

Panel B: Investment focus within the sample

Focus	# of firms	% of sample
A. Sectoral diversification		
1 sector	16	47.1
2 sectors	14	41.2
3 sectors	3	8.8
4 sectors	1	2.9
B. Property type		
Office	25	73.5
Retail	21	61.8
Industry	6	17.6
Residential	3	8.8
Hotel	1	2.9
Healthcare	1	2.9
Other	1	2.9
C. International diversification		
International	4	11.8
National	30	88.2

Notes: Panel A of Appendix A presents our sample of 34 UK property companies, created from the UK universe of the GPR General 250 Index for the 1998-2002 period. Companies were excluded from the initial sample, if (a) they were not listed on a continuous basis during the sample period, or (b) necessary data were unavailable. The excluded companies include: Ashtenne Holdings Plc, Daejan Holdings, Estates & General plc, Grainger Trust Plc, Minerva Plc, Mountview Estates Plc, Peel Holdings Plc, Smith (James) Estates, The Unite Group plc, Tops Estates Plc, Town Centre Securities Plc.

Panel B of Appendix A presents the investment focus for the sample of UK property companies (1998 – 2002).

Sectoral diversification shows the number of property types a company invests in, where property type is defined by office, retail, industry, residential, hotel, healthcare, or other. A company is defined as investing internationally if at least 25% of the portfolio is invested in a foreign market.

Sources: Annual Reports, Global Property Research.

	ln(RC)	ln(RLT)	ln(RT)	ln(PERF)$_t$	ln(PERF)$_{t-1}$	ln(EPS)$_t$	ln(EPS)$_{t-1}$	ln(αGPR)$_t$	ln(αGPR)$_{t-1}$	ln(αFTSE)$_t$	ln(αFTSE)$_{t-1}$	ln(GPR)$_t$	ln(GPR)$_{t-1}$	ln(CAP)	ln(CAP2)
ln(RLT)	**0,52**														
ln(RT)	**0,86**	**0,78**													
ln(PERF)$_t$	0,02	**0,16**	0,09												
ln(PERF)$_{t-1}$	0,07	0,14	0,12	**-0,21**											
ln(EPS)$_t$	**0,44**	**0,27**	**0,36**	0,15	0,09										
ln(EPS)$_{t-1}$	-0,04	**0,16**	0,09	0,10	**0,17**	**0,29**									
ln(αGPR)$_t$	0,00	**0,17**	0,07	**0,85**	**-0,20**	**0,14**	0,11								
ln(αGPR)$_{t-1}$	0,02	0,09	0,09	-0,155	**0,84**	0,11	0,14	**-0,18**							
ln(αFTSE)$_t$	0,13	**0,21**	**0,17**	**0,90**	**-0,14**	**0,17**	0,09	**0,77**	-0,14						
ln(αFTSE)$_{t-1}$	0,13	0,14	**0,15**	**-0,22**	**0,92**	0,08	0,11	**-0,24**	**0,78**	**-0,15**					
ln(GPR)$_t$	0,00	-0,02	-0,02	0,01	0,00	-0,04	-0,09	-0,01	0,00	0,00	0,06				
ln(GPR)$_{t-1}$	0,09	0,03	0,05	-0,07	0,06	0,02	0,02	-0,03	-0,02	0,04	0,06	**-0,50**			
ln(CAP)	**0,59**	**0,48**	**0,62**	0,03	0,02	**0,42**	0,01	-0,03	0,00	0,03	0,00	0,00	0,01		
ln(CAP2)	**0,50**	**0,43**	**0,55**	-0,01	-0,01	**0,31**	-0,03	-0,07	-0,04	-0,02	-0,03	0,00	0,01	**0,97**	
ln(SALES)	**0,59**	**0,39**	**0,54**	-0,03	0,05	**0,51**	0,01	-0,04	0,01	0,01	0,04	0,01	0,00	**0,79**	**0,76**
YEAR99	-0,11	-0,02	-0,09	-0,05	-0,01	-0,04	0,03	0,04	0,00	-0,07	**-0,17**	**-0,61**	**0,50**	-0,02	-0,02
YEAR00	0,00	0,02	0,05	0,08	-0,03	0,05	0,08	0,01	0,03	0,03	-0,02	**-0,36**	**-0,56**	0,01	0,00
YEAR01	0,11	0,08	0,12	0,04	0,13	-0,01	0,05	0,00	0,00	0,14	0,09	**0,68**	**-0,32**	0,02	0,03
YEAR02	**0,20**	0,06	0,15	-0,03	0,08	0,08	0,08	-0,06	-0,02	0,12	**0,21**	**-0,21**	**0,69**	0,03	0,03
OFFICE	-0,05	0,14	0,04	-0,01	0,02	0,06	0,12	-0,04	0,00	-0,05	-0,04	0,00	0,00	**0,15**	**0,17**
RETAIL	0,11	0,04	0,03	-0,09	-0,06	-0,04	-0,138	-0,10	-0,08	-0,06	-0,05	0,00	0,00	0,03	0,05
RES	-0,12	**-0,363**	**-0,208**	0,05	0,02	0,06	-0,07	0,08	0,06	0,01	0,01	0,00	0,00	**-0,24**	**-0,24**
INDUS	-0,04	0,10	-0,01	0,11	0,11	0,15	**0,30**	0,10	0,11	0,10	0,09	0,00	0,00	-0,09	-0,11
INT	**-0,16**	-0,08	**-0,144**	0,03	-0,03	0,03	-0,07	0,06	-0,02	0,06	-0,01	0,00	0,00	-0,10	-0,09
QUALITY	0,10	**0,21**	0,14	0,04	0,04	**0,22**	0,07	0,08	0,07	0,03	0,03	0,00	0,00	**0,27**	**0,25**
GEODIV	-0,10	**-0,31**	**-0,15**	-0,06	-0,06	**-0,21**	-0,06	-0,04	-0,04	-0,06	-0,04	0,00	0,00	**-0,32**	**-0,26**
BLOCK	**-0,30**	-0,13	**-0,24**	-0,02	0,01	**-0,29**	0,01	0,02	-0,03	0,03	0,03	0,00	0,04	**-0,42**	**-0,41**
INSTI	0,10	**0,35**	**0,24**	-0,04	-0,03	-0,08	**0,16**	0,02	0,03	0,00	0,01	-0,01	0,02	**0,15**	**0,18**
OUTS	**0,18**	**0,40**	**0,26**	0,13	0,04	**0,24**	0,03	0,10	-0,01	0,10	0,03	-0,01	-0,02	**0,30**	**0,25**
CEOOWN	**-0,22**	**-0,28**	**-0,29**	-0,02	-0,04	**-0,17**	-0,08	-0,02	-0,05	-0,06	-0,09	-0,02	-0,01	-0,04	0,01
M2B	0,06	0,07	**0,19**	0,14	0,08	0,00	-0,01	**0,16**	0,13	0,11	0,07	-0,04	-0,07	0,05	0,08
DEBT	0,01	0,00	0,03	-0,04	-0,05	-0,152	0,05	-0,04	-0,12	0,02	-0,07	0,03	-0,10	**-0,17**	**-0,16**
SECTORDIV	-0,09	-0,05	-0,09	-0,02	0,00	-0,02	**0,17**	-0,04	-0,03	-0,04	-0,05	-0,01	0,05	-0,04	-0,03

	ln(SALES)	YEAR99	YEAR00	YEAR01	YEAR02	OFFICE	RETAIL	RES	INDUS	INT	QUALITY	GEODIV	BLOCK	INSTI	OUTS	CEOOWN	M2B	DEBT
ln(RLT)																		
ln(RT)																		
ln(PERF)$_t$																		
ln(PERF)$_{t-1}$																		
ln(EPS)$_t$																		
ln(EPS)$_{t-1}$																		
ln(αGPR)$_t$																		
ln(αGPR)$_{t-1}$																		
ln(αFTSE)$_t$																		
ln(αFTSE)$_{t-1}$																		
ln(GPR)$_t$																		
ln(GPR)$_{t-1}$																		
ln(CAP)																		
ln(CAP2)																		
ln(SALES)																		
YEAR99	-0,06																	
YEAR00	0,03	**-0,25**																
YEAR01	0,07	**-0,25**	**-0,25**															
YEAR02	0,06	**-0,25**	**-0,25**	**-0,25**														
OFFICE	0,04	0,00	0,00	0,00	0,00													
RETAIL	0,08	0,00	0,00	0,00	0,00	0,08												
RES	-0,12	0,00	0,00	0,00	0,00	**-0,28**	**-0,40**											
INDUS	-0,09	0,00	0,00	0,00	0,00	-0,07	**-0,27**	**-0,14**										
INT	-0,01	0,00	0,00	0,00	0,00	0,01	-0,09	**-0,11**	**-0,17**									
QUALITY	**0,17**	0,00	0,00	0,00	0,00	**-0,16**	**-0,33**	0,01	**0,18**	0,08								
GEODIV	**-0,32**	0,00	0,00	0,00	0,00	**-0,29**	**-0,22**	**0,56**	-0,08	-0,06	**-0,24**							
BLOCK	**-0,38**	0,00	-0,04	-0,03	0,04	0,11	0,12	**-0,25**	-0,07	**0,16**	-0,02	**-0,16**						
INSTI	-0,01	-0,01	-0,01	-0,01	0,02	0,00	0,06	**-0,23**	0,01	0,07	**0,30**	-0,13	-0,05					
OUTS	**0,27**	0,01	0,02	-0,01	-0,03	0,11	0,04	**-0,24**	0,09	**0,21**	**0,16**	**-0,42**	0,06	0,00				
CEOOWN	0,07	0,02	0,02	-0,03	-0,03	-0,07	0,03	-0,12	-0,05	0,12	-0,07	-0,07	**0,15**	**-0,30**	**0,28**			
M2B	-0,09	0,00	0,09	-0,08	-0,06	-0,06	-0,12	**0,22**	-0,02	-0,12	-0,03	**0,34**	-0,09	0,04	-0,12	-0,12		
DEBT	0,01	-0,03	0,08	0,09	-0,08	0,02	-0,04	-0,12	**0,18**	**0,21**	0,04	-0,15	**0,26**	0,05	**-0,15**	-0,07	0,04	
SECTORDIV	-0,07	-0,02	-0,02	-0,02	0,07	**0,50**	**0,45**	-0,09	0,14	-0,03	**-0,33**	-0,12	0,03	-0,09	0,06	0,04	-0,04	0,05

Notes: Appendix B provides the total correlation matrix for all variables.
Figures in **bold** are significant at the 5%-level.