# RELATIONSHIP BETWEEN EXECUTIVE COMPENSATION AND FIRM PERFORMANCE: AN EMPIRICAL STUDY OF 100 KOREAN COMPANIES

**By**

**Yunjin Lee**

**A DISSERTATION**

Submitted to
KDI School of Public Policy and Management
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## ABSTRACT

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Executive compensation is a scheme used to mitigate agency problems, which arise when the interests of the owners are not aligned with those of the managers. As one measure of corporate governance, I studied relationship between executive cash compensation and firm performance of 100 large Korean companies included in the KOSPI 100 for 2002 and 2001. Pay-performance directional link, sensitivity, elasticity, semi-elasticity, and Relative Performance Evaluation (RPE) were investigated using simple and multiple regressions.

The findings indicate that there is a strong link between executive pay and firm performance represented as total return to shareholders, especially for directional link at an individual company level. For pay-performance sensitivity and elasticity, the relationship was tighter for lagged indicators rather than for contemporaneous

indicators, which remains a puzzle. However, pay-performance semi-elasticity with an accounting measure of return, ROA, was weak. Industry-wide returns had little influence on the executive pay levels.

The puzzle recognized above could be attributed to lack of transparency in disclosing data on executive compensation and to absence of compensation committees in most Korean companies. Improvement in availability of information and in active roles of compensation committees, as recommended by international codes of best practices, is warranted.

***To mom, dad,***
***and my grandma***

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## I. INTRODUCTION

Separation of ownership and management can create agency problems to the owners when the managers act in their own self-interests (Fama 1980, Jensen & Meckling 1976). Executive compensation is a scheme used to mitigate these problems. For large Korean companies, especially for chaebols and chaebol-affiliated companies where foundation families wield greater managerial power with little share ownership, their corporate governance is known to be weak. Because those companies are not independently run but operated to maximize the interest of the overall group or the controlling family's interest (Kato, Kim and Lee, 2003). Executive compensation in these large corporations, as an evidence of poor corporate governance structure, appears to be set according to performance of the overall group and not according to that of individual affiliates, therefore accelerating agency costs. This important issue, relationship between executive pay and firm performance in big Korean companies, has so far been understudied.

Although some argue that non-cash based compensation, such as equity-based awards, are used to provide significant incentives to managers (Stacey R. Kole 1997), especially in the US, executive compensation is largely confined to cash (salary,

bonus, and small amounts of other cash compensation) in Korea. In addition, the proportion of cash among total rewards is more significant for bigger companies, which are subjects of this dissertation. Here I examine the relationship between resident directors' cash compensation and firm performance of the KOSPI 100 companies, particularly measured by total return to shareholders and ROA.

In the following section I describe data used in the analysis and their sources. Section 3 explains methodologies adopted to examine pay-performance relationship. Section 4 shows descriptive statistics of the company data analyzed. The results of the analysis on pay-performance directional relationship, sensitivity and elasticity are followed in section 5. Section 6 discusses compensation committee in large Korean companies and code of best practices for setting executive remuneration, followed by conclusion of this dissertation.

## II. DATA

Cash compensation data of listed companies are available in annual reports and proxy statements, which can be easily accessed in Korean from the KSE and the Financial

Supervisory Service (FSS) homepages[1]. The data of total shareholder return for individual companies were provided by the Korea Securities Research Institute (KSRI). As for industry returns, corporations included in the study were classified into six sectors: manufacturing, financial services, construction, gas and electricity, telecommunications, and other services, following statistical standards of industrial classification by the National Statistics Office (NSO). The ROA information were retrieved from the Korea Information Service (KIS) website[2].

Data of one hundred companies comprising the KOSPI (Korea Composite Stock Price Index) 100 were used. The Korea Stock Exchange (KSE) periodically revises the list of companies included in the index, which are the ones with the biggest market capitalization among the KOSPI 200 corporations. I opted to make use of the companies included in the KOSPI 100, when the KSE announced a new list at its regular committee meeting on 14 June 2002. Table 1 shows the list of 100 companies.

[1] The URL for KSE is http://kind.kse.or.kr and the URL for FSS is http://dart.fss.or.kr.
[2] The URL for KIS is http://www.kisinfo.com/sangjang/intro.htm.

Only data for the fiscal years ended in 2001 and in 2002 instead of a long time series data were analyzed for two reasons[3]. First, the annual reports prior to 2001 included many non-registered directors when disclosing the aggregate cash compensation level. Therefore executive pay was discounted[4]. Second, cash compensation information was not separately available for resident executives, non-resident executives, and outside directors[5].

There were some companies that became wholly different entities during the time period analyzed or changed their reporting formats. In such cases, either companies were excluded from the study or reasonable assumptions were made.

Three companies were excluded from the entire analyses. Kookmin Bank (60000), Good Morning Shinhan Secrities (8670), and Hana Bank (7360) underwent M&A,

[3] Most Korean companies' fiscal year ends in December. However, there are some exceptions. Daishin Securities (3540), Good Morning Shinhan Securities(8670), Samsung Securities (16360), Bukwang Pahrmaceuticals (3000), Hyundai Securities (3450), Hyundai Engineering & Construction (720), SK Securities (1510), and LG Investment & Securities (5940) have their financial year ended in March. Samyang Corporation (70) closes its book in June.

[4] There are, however, still some companies that do not separately report pay of resident directors and non-resident directors. Examples are Daesang Corporation (1680), SK Chemicals (6120), Halla Climate Control (18880), and Keumkang Korea Chemicals (2380), etc.

[5] As for Hyundai Mipo Dockyard (10620), SK Chemicals (6120), and INI Steel (4020, for 2001 only), however, pay for resident executives, non-resident executives, and outside directors were aggregated.

and could not compute firm-level performance. As for total shareholder return, 2001 data for LG Electronics (66570) and LG Card (32710) were unavailable, since they IPOed in the Korea Stock Exchange (KSE) in 2002. 2002 figures for Hynix Semiconductors (660), LGEI (2610), LG Electronics (66570), and 2001 data for Hyundai Engineering & Construction (720) were excluded, since they showed inconsistencies in value due to stock conversion, stock split, or share consolidation during the pertinent year. LG Electronics (66570) was not included in the computation of ROA for 2002, since the company's balance sheet for the year ended 2001 was not reported. Another three LG subsidiaries, LG Chemicals (51910), LG Card (32710) and LG Household & Health Care (51900), were excluded from 2001's ROA computation, since those companies were listed in 2001 and therefore their balance sheets for 2000 were not publicly available.

One company, Nongshim (4370), changed its fiscal year during 2001 from June to December. Since Nongshim's executive compensation level in the first half of 2001 was not disclosed, I assumed that the missing part could be estimated by approximating the same pay level as in the second half of 2001.

For several companies, inconsistencies in reporting formats were observed. LG Card (32710) and INI Steel (4020) separated the number and pay of resident directors and outside directors in 2002, whereas they aggregated the equivalent data for 2001. LG Industrial Systems (10120) reported the cash payment to outside directors in 2001, but dropped the pertinent information in 2002.

## III. METHODOLOGY

### A. Computation of Average Cash Compensation

Average cash compensation was basically computed by dividing aggregate pay by the number of registered directors, because information on individual director's compensation was not separately disclosed. This, however, was complicated by a number of factors. First, there were outside directors, whose pay is considerably lower than executive directors. This means that the level of average pay can be influenced by the ratio of outside directors. To resolve this problem, I only concentrated on the pay to executive directors[6]. Second, non-executive directors also receive pay lower than resident executives. So I excluded non-resident executive

[6] However, there are three exceptions as noted above in footnote 5. Pay for resident executives, non-resident executives, and outside directors were not separately available for Hyundai Mipo Dockyard (10620), SK Chemicals (6120), and INI Steel (4020, in 2001 only).

directors from the calculation of average pay[7]. Third, pay for auditors were excluded from the computation for two reasons. The composition of auditors depended on individual corporations and was highly arbitrary in including resident executives, non-resident executives, and/or outside directors. The compensation level for auditors was also complicated, falling in between that of resident executives and that of outside directors, in many cases the middle value[8]. Fourth, if a director resigns before the Annual General Meeting (AGM) and does not serve full year, the level of aggregate cash compensation would fall and make the average pay lower. To resolve this problem, I divided by the hypothetical number of directors that incorporates the number of months he/she served during the fiscal year[9].

## B. Pay-Performance Analysis

The agency theory dictates that compensation plans are designed to align the interests of risk-averse self-interested executives with those of shareholders (Murphy 1999).

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[7] As for companies which did not disclose cash compensation information separately for resident and non-resident executives, I assumed that non-residents receive the same level of pay as residents.

[8] There were exceptions due to availability of information. Hyundai Heavy Industries (9540), Hyundai Mipo Dockyard (10620), Kia Motors (270), LG Electronics (66570), LG Cable (6260), KT(30200), Dongkuk Steel Mill (1230), Keumkang Korea Chemicals (2380), Honam Petrochem. (11170), Cheil Ind. (1300), and Samyang (70, 2001 only) disclosed the pay level of auditors in aggregation with that of resident executives.

[9] Suppose there were 5 executive directors at fiscal year-end, they received 450 million won as cash compensation. If one director resigned as of June 30, the average pay would be 100 million won (=450/4.5).

Pay-performance analysis empirically examines how closely the interests of two parties are tied. Wealth of resident directors, which is explicitly tied to the principal's objective through his holdings of stock, restricted stocks, and stock options (Murphy 1998), is beyond the scope of this dissertation, because the level of compensation other than cash is relatively insignificant in Korean cases.

In this dissertation I investigate implicit relationship between resident directors' cash compensation and firm performance measures, following computation specifications described in Murphy (1999). Among many different measures of firm performance, total return to shareholder as a stock performance indicator and ROA as an operating performance indicator were used.

### Pay-Performance Directional Link

A directional link between the absolute amount of change in shareholder value and that in executive cash compensation is measured as in the following formula (1). For instance, if both shareholder value and cash compensation increase or decrease at the same time, the value will be positive. In contrast, if executive compensation increases when shareholder value decreases, or vice versa, the division result will have a

negative value. Positive and higher values suggest that directors' pay is better aligned with performance of a firm.

For individual companies, the change in total cash compensation and the change in average cash compensation each are divided by the contemporaneous and lagged changes in shareholder value.

$$\Delta(\text{Cash Compensation})_{it} / \Delta(\text{Shareholder Value})_{it} \quad \ldots (1)$$

Using logarithms to measure changes in pay and in shareholder value, I studied pay-performance relationship in percentage changes at an individual company level. As in the first formula, total and average cash compensation data, and contemporaneous and lagged indicators of shareholder value were used.

$$\Delta\ln(\text{Cash Compensation})_{it} / \Delta\ln(\text{Shareholder Value})_{it} \quad \ldots (2)$$

## Pay-Performance Sensitivity for Cash Compensation

To examine pay-performance sensitivity of all the companies in the analysis, I follow the regression specifications by Jensen and Murphy (1990). The formula (3) shows the contribution of the change in cash compensation to the change in shareholder value. The coefficient b represents how significant the contribution is.

$$\Delta(\text{Cash Compensation})_{it} = a + b\Delta(\text{Shareholder Value})_{it} \quad \ldots (3)$$

## Pay-Performance Elasticity for Cash Compensation

The fourth formula, as in the following, using a logarithm, was taken to measure pay-performance elasticity for all the companies in the study. The relative value of the percentage change in cash compensation to that in shareholder value is measured. To compute elasticity I follow the regression specifications of Coughlan and Schmidt (1985) and Murphy (1986):

$$\Delta\ln(\text{Cash Compensation})_{it} = \alpha + \beta\Delta\ln(\text{Shareholder Value})_{it}$$

The above is equivalent to the following formula: $\Delta \ln(\text{Cash Compensation})_{it} = \alpha + \beta \ln(1 + \text{Return to Shareholders})_{it}$[10] …(4)

Neither the sensitivity nor the elasticity approach strictly dominates the other (Murph 1999). The primary advantage of the elasticity approach is that it produces a "better-fit" in the sense that rates of return explain more of cross-sectional variation of $\Delta \ln(\text{CEO Pay})$ than changes in shareholder value explain of $\Delta(\text{CEO Pay})$. In addition, while pay-performance sensitivities vary monotonically with firm size, the elasticity is relatively invariant to firm size (Gibbons and Murphy, 1992).

[10] $\Delta \ln(\text{Shareholder Value})_{it}$

$= \ln(\text{Shareholder Value})_{it} - \ln(\text{Shareholder Value})_{it-1}$

$= \ln\left[\frac{(\text{Shareholder Value})_{it}}{(\text{Shareholder Value})_{it-1}}\right]$

$= \ln\left[1 + \frac{(\text{Shareholder Value})_{it} - (\text{Shareholder Value})_{it-1}}{(\text{Shareholder Value})_{it-1}}\right]$

$= \ln(1 + \text{Return to Shareholders})_{it}$

## Pay-Performance Semi-Elasticity for Cash Compensation

Using a different parameter of firm performance, I studied pay-performance semi-elasticity following the methodology by Kaplan (1994). The regression assesses relationship between the log of the change in executive compensation and the change in ROA as in the following formula:

$$\Delta \ln(\text{Cash Compensation})_{it} = \alpha + \beta \Delta(\text{ROA})_{it} \quad \ldots(5)$$

## Relative Performance Evaluation (RPE)

The agency theory concerns the use of relative performance evaluation in empirically measuring pay-performance relationship (Holmstrom, 1982). If the component of company performance contains an industry or market effect as well as an idiosyncratic effect, then the influence should be taken out of the performance measures. I replicated Gibbons and Murphy (1990) methodology for relative performance evaluation. Here I only considered industry return data because market return is a constant, showing the same value over all the cross-sectional data examined.

$$\Delta \ln(\text{Cash Compensation})_{it} = \alpha + \beta \ln(1 + \text{Return to Shareholders})_{it} + \gamma \ln(1 + \text{Industry Return})_{it} \quad \ldots(6)$$

## IV. DESCRIPTIVE STATISTICS OF THE COMPANIES ANALYZED

Table 2 presents descriptive features of the companies included in the analysis. The average number of resident directors decreased from 5.78 in 2001 to 5.58 in 2002, whereas the average number of outside directors slightly increased from 3.86 in 2001 to 3.88 in 2002. Most companies had less than 10 resident directors. Most noticeable exceptions with higher values were due to the companies that aggregated the number of resident and non-resident directors. Daesang Corporation (1680) disclosed 29 directors for 2002 and 30 directors for 2001. SK Chemicals (6120) reported 21 directors (also including outside directors) in 2002, a significant increase from 8 in 2001. The number of resident directors sharply fell in some companies, such as Hankuk Electronic Glass (9720) (from 13 in 2001 to 2 in 2002), which was ascribed to the regulatory effect.

Pay level in general rose in 2002 compared with that in 2001. Especially the average level of resident directors' cash compensation increased significantly, whereas that of outside directors' cash compensation showed a rather modest growth. Values were widely spread over with high standard deviations. The maximum value of average pay of resident directors was for Samsung Electronics (5930) for both years. The minimum values were for SK Chemicals (6120) in 2002 and for Hyundai Heavy Industries (9540) in 2001, which were in fact diluted due to the aggregation of pay for resident, non-resident, and outside directors. Top 10 companies ranked for total and average pay of resident directors in both years are listed below.

| Rank | Company Name | Total Pay in 2002 | | Rank | Company Name | Total Pay in 2001 |
|---|---|---|---|---|---|---|
| 1 | Samsung Electronics | 36,500,000 | | 1 | Samsung Electronics | 24,250,000 |
| 2 | Samsung | 7,469,000 | | 2 | Samsung | 5,150,000 |
| 3 | CJ | 5,599,327 | | 3 | Good Morning Shinhan Securities | 4,594,000 |
| 4 | Samsung SDI | 4,744,000 | | 4 | Samsung SDI | 3,730,000 |
| 5 | Samsung Fire & Marine Insurance | 4,703,540 | | 5 | Samsung Fire & Marine Insurance | 3,727,561 |
| 6 | Orion Corp. | 4,366,000 | | 6 | CJ | 3,365,573 |
| 7 | Good Morning Shinhan Securities | 4,088,000 | | 7 | Daesang | 2,764,730 |
| 8 | Hyosung | 3,866,875 | | 8 | Cheil Communications | 2,544,000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | Cheil Communications | 3,544,000 | | 9 | Cheil Ind. | 2,507,232 |
| 10 | SK Telecom | 3,525,000 | | 10 | LG Electronics | 2,416,000 |

(in thousands Korean won)

| Rank | Company Name | Average Pay in 2002 | | Rank | Company Name | Average Pay in 2001 |
|---|---|---|---|---|---|---|
| 1 | Samsung Electronics | 5,214,286 | | 1 | Samsung Electronics | 3,464,286 |
| 2 | Samsung SDI | 1,581,333 | | 2 | Samsung SDI | 1,243,333 |
| 3 | CJ | 1,389,832 | | 3 | Samsung Fire & Marine Insurance | 931,890 |
| 4 | Samsung | 1,244,833 | | 4 | Samsung | 858,333 |
| 5 | Samsung Fire & Marine Insurance | 1,175,885 | | 5 | CJ | 841,393 |
| 6 | LG Card | 1,094,000 | | 6 | Samsung Techwin | 779,867 |
| 7 | Samsung Heavy Ind. | 962,000 | | 7 | Samsung Securities | 766,667 |
| 8 | LGEI | 881,000 | | 8 | Samsung Heavy Ind. | 660,117 |
| 9 | Samsung Techwin | 860,133 | | 9 | Samsung Electro-Mechanics | 638,667 |
| 10 | Samsung Securities | 847,667 | | 10 | LG Electronics | 604,000 |

(in thousands Korean won)

Figure 1 and 2 show total pay of directors in thousands Korean won in 2002 and in 2001 respectively for individual companies. Figure 3 and 4 are histograms for average of executive pay levels in 2002 and in 2001 respectively. Clearly both total and average compensation rose in 2002 than that in 2001. With exceptions of few

outliers, data of cash compensation were concentrated on the first quartile of the entire values. Figures from 5 to 8 each are the equivalent of the figures from 1 to 4, using a logarithm for pay amounts.

Average of total return to shareholders in 2001 was higher at 58.16% than 19.13% in 2002. The minimum values were taken by Daewoo Securities (6800) in 2002 and by LGCI (3550) in 2001. In contrast, ROA was higher in 2002 with a mean of 3.09% than in 2001 of 1.93%. Data of both performance measures were spread over a large range with high standard deviations.

## V. RESULTS OF ANALYSIS

### A. Pay-Performance Directional Link

Table 3 presents the summary statistics of the formula (1) for individual companies. In most corporations, the change in executive cash compensation had a positive relationship with the change in shareholder value. Figure 9 and 10 are scatter plots between the change in total cash compensation and that in shareholder value in 2002

and in 2001 respectively. Both figures show that values mostly lie above the origin. Out of 90 companies analyzed, 23 and 22 corporations had negative values in the year 2002 and 2001 respectively, suggesting a poor alignment of executive compensation with shareholder value. The average of the coefficient for the change in total cash compensation showed a sharp increase to 0.0007246 in 2002 from 0.0004987 in 2001. Both statistics had high t-values, suggesting a concentration around the mean.

For the change in average cash compensation, the mean value slightly decreased to 0.0001224 in 2002 from 0.0001254 in 2001. Again most companies had positive values but with exceptions of 13 and 12 corporations in the year 2002 and 2001 respectively. Figure 11 and 12 are scatter plots between the change in average cash compensation and that in shareholder value in 2002 and in 2001 respectively, showing that most values are positive. However, the statistical value for 2002 was less significant around the mean within a 5% confidence level.

Table 4 shows summary statistics for pay-performance directional link for individual companies, following the formula (2), which uses a logarithm. The results were consistent with those of the formula (1). Most companies had positive values with

some exceptions both for total and average compensation in 2002 as well as in 2001. All numbers were statistically significant with high t values. This means that the directional change in cash compensation for individual companies is very much aligned with the directional change in firm performance.

## B. Pay-Performance Sensitivity

Table 5 presents the regression results for pay-performance sensitivity of the formula (3). In both years for 2002 and 2001, and for the change in total cash compensation and in average total compensation, all four coefficients were significantly different from zero and their t values were very high within a 1% confidence level. This means that as for the KOSPI 100 companies executive compensation was highly correlated with firm performance. Despite significant sensitivity shown, it is puzzling that the coefficient values were higher with lagged indicators rather than with contemporaneous ones.

## C. Pay-Performance Elasticity

The regression results of the formula (4) were shown in Table 6. Coefficients of the contemporaneous indicators of firm performance did not have statistical significance.

However, the coefficient of the lagged performance indicators had high positive values (significantly different from zero) within a 5% confidence level. It remains a puzzle that pay-performance elasticity for the previous year is very strong, whereas that for the current year is weak.

### D. Pay-Performance Semi-Elasticity

Regression coefficients with ROA as an independent variable had little statistical significance for 2002 as well as for 2001, showing that the accounting measure of firm performance does not play an important role in setting executive compensation. This result is consistent with another recent study on executive compensation in Korea (Kato, Kim and Lee, 2003).

### E. Relative Performance Evaluation (RPE)

The multiple regression results of the formula (6) are tabulated in Table 7. Coefficients for industry returns had very little statistical significance and therefore could be ignored, meaning that executive compensation was barely influenced by industry-wide performance. The independent variable does not explain variations in the change in cash compensation of directors.

As for the values of coefficients for total shareholder return, again lagged indicators had high positive values whereas contemporaneous indicators were poor in explaining relative performance. This observation is consistent with the previous ones for pay-performance sensitivity and elasticity.

## VI. COMPENSATION COMMITTEE

The puzzle shown in the study results above, absence of link between executive compensation and contemporaneous firm performance indicators, could be attributed to lack of transparency in setting directors' pay. Information on executive compensation of listed companies are incomplete and not transparent enough in Korea. In the annual reports, most companies report their base salary and incentive bonus for directors in aggregation only but not separately. In addition, there is no specific requirement to disclose the amount of pay for individual directors. The procedures

and policies to set executive pay are also not disclosed. The lack of information prevents shareholders from judging the appropriate level of executive pay (Kim, 2003), therefore leading to a loose link between pay and performance.

Only ten companies out of the total 100 companies included in the analysis officially had compensation committees in the board. Most of them belong to financial services industries. The following are the list of companies with compensation committees:

Good Morning Shinhan Securities (8670), Daewoo Securities (6800), Chohung Bank (10), Hana Bank (7360), Koram Bank (16830), KT&G (33780), KT (30200), S-Oil (10950), Mirae Corporation (25560) and POSCO (5490).

The Korean situation leaves much room for improvement in corporate governance. In the appendix A and B, I attached recommended best practices of compensation committees by the International Corporate Governance Network (ICGN) and by Hermes Investment International respectively.

## VII. CONCLUSION

Executive compensation is a tool used to mitigate agency costs, which arise when the interests of owners are not aligned with those of managers. As a measure of corporate governance in large Korean companies, I studied relationship between executive compensation and firm performance in this dissertation. Pay-performance directional relationship, sensitivity, elasticity, semi-elasticity, and RPE were analyzed.

Most among the KOSPI 100 companies investigated showed strong pay-performance directional link, suggesting that increases in shareholder values were accompanied by increases in cash compensation. High values of pay-performance relationship suggest that in large Korean companies executive pay is strongly linked with shareholder return, whereas weak semi-elasticity shows that the cash compensation does fluctuate little depending on accounting indicators. This conclusion is consistent with existing studies. However, there still remains a puzzle that lagged performance indicators had tighter link than contemporaneous indicators. Executive pay was barely influenced by industry-wide ups-and-downs but by returns to shareholders.

The somewhat puzzling relationship between pay and performance in large Korean companies could be ascribed to lack of information and transparency on executive compensation and dysfunctioning of compensation committees. Only nine companies out of the one hundred companies included in the analysis had compensation committees, none of which reported the procedures and policies of setting executive compensation. The current Korean situation warrants improvement in transparency of information and more active roles of compensation committees when setting the level of executive compensation.

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Table 1.

List of Companies

| KSE Code | Company Name |
|---|---|
| 01830 | ANAM SEMICONDUCTORS |
| 03000 | BUKWANG PHARM. |
| 30000 | CHEIL COMMUNICATIONS |
| 01300 | CHEIL IND. |
| 00010 | CHOHUNG BANK |
| 01040 | CJ |
| 15940 | DACOM |
| 08060 | DAEDUCK ELECTRONICS |
| 00210 | DAELIM IND. |
| 01680 | DAESANG |
| 40740 | DAEWOO CONSTRUCTIONS |
| 42670 | DAEWOO HEAVY INDUSTRIES & MACHINERY |
| 06800 | DAEWOO SECURITIES |
| 42660 | DAEWOO SHIPBUILDING&MARINE ENGINEERING |
| 03540 | DAISHIN SECURITIES |
| 10060 | DC CHEM. |
| 00640 | DONGA PHARM. |
| 01230 | DONHKUK STILL MILL |
| 00150 | DOOSAN |
| 34020 | DOOSAN HEAVY INDUSTRIES |
| 08670 | GOOD MORNING SHINHAN SECURITIES |
| 18880 | HALLA CLIMATE CONTROL |
| 07360 | HANA BANK |
| 03300 | HANILCEMENT CO.,LTD. |
| 03480 | HANJIN HEAVY INDUSTRIES |
| 00700 | HANJIN SHIPPING |
| 00240 | HANKOOK TIRE |
| 09720 | HANKUK ELECTRIC GLASS |
| 02000 | HANKUK GLASS |
| 04150 | HANSOL PAPER |
| 00880 | HANWHA |
| 09830 | HANWHA CHEM. |
| 00140 | HITE BREW |
| 11170 | HONAM PETROCHEM. |

| | |
|---|---|
| 00660 | HYNIX SEMICONDUCTORS |
| 04800 | HYOSUNG |
| 05440 | HYUNDAI DEPARTMENT STORE H&C |
| 12630 | HYUNDAI DEVELOPMENT ENGINEERING&CONSTRCTIONS |
| 00720 | HYUNDAI ENG & CONST |
| 09540 | HYUNDAI HEAVY INDUSTRIES |
| 10520 | HYUNDAI HYSCO |
| 10620 | HYUNDAI MIPO DOCKYARD |
| 12330 | HYUNDAI MOBIS |
| 05380 | HYUNDAI MOTORS |
| 03450 | HYUNDAI SECURITIES |
| 04020 | INI STEEL |
| 33240 | JAWHA ELECTRONICS |
| 02380 | KEUMKANG KOREA CHEM. |
| 00270 | KIA MOTORS |
| 60000 | KOOKMIN BANK |
| 16830 | KORAM BANK |
| 03490 | KOREA AIRLINES |
| 15760 | KOREA ELECTRIC POWER |
| 04940 | KOREA EXCHANGE BANK |
| 36460 | KOREA GAS CORPORATION |
| 10130 | KOREA ZINC |
| 30200 | KT |
| 33780 | KT&G |
| 06260 | LG CABLE |
| 32710 | LG CARD |
| 51910 | LG CHEM. |
| 66570 | LG ELECTRONICS |
| 06360 | LG ENGINEERING & CONSTRUCTION |
| 51900 | LG HOUSEHOLD&HEALTH CARE |
| 10120 | LG INDUSTRIAL SYSTEMS |
| 05940 | LG INVESTMENT&SECURITIES |
| 03550 | LGCI |
| 02610 | LGEI |
| 25560 | MIRAE CORP. |
| 25860 | NAMHAE CHEM. |
| 04370 | NONGSHIM |
| 01800 | ORION Corp. |
| 02790 | PACIFIC CORP. |
| 25930 | PANTECH |
| 05810 | POONGSAN |
| 05490 | POSCO |
| 12750 | S1 CORP. |
| 05500 | SAMJIN PHARM. |
| 00830 | SAMSUNG |
| 09150 | SAMSUNG ELECTRO-MECHANICS |

| | |
|---|---|
| 05930 | SAMSUNG ELECTRONICS |
| 04000 | SAMSUNG FINE CHEM. |
| 00810 | SAMSUNG FIRE & MARINE INSURANCE |
| 10140 | SAMSUNG HEAVY INDUSTRIES |
| 06400 | SAMSUNG SDI |
| 16360 | SAMSUNG SECURITIES |
| 12450 | SAMSUNG TECHWIN |
| 00070 | SAMYANG |
| 55550 | SHINHAN FINANCIAL GROUP |
| 04170 | SHINSEGAE |
| 29530 | SINDO RICOH |
| 03600 | SK |
| 06120 | SK CHEMICALS |
| 01740 | SK GLOBAL |
| 01510 | SK SECURITIES |
| 17670 | SK TELECOM |
| 10950 | S-Oil |
| 01440 | TAIHAN ELECTRONIC WIRE |
| 14900 | TRIGEM COMPUTER |
| 00100 | YUHAN |

Table 2.

Summary Statistics

| | Mean | Median | Min | Max | S.d | Observations |
|---|---|---|---|---|---|---|
| Number of resident directors in 2002 | 5.58 | 4 | 2 | 29 | 4.21 | 97 |
| Total pay of resident directors in 2002 (KRW mil.) | 1,996.65 | 1,260.86 | 271.32 | 36,500.00 | 3,776.16 | 97 |
| Average pay of resident directors in 2002 (KRW mil.) | 410.50 | 244.84 | 61.43 | 5,214.29 | 584.06 | 97 |
| Number of resident directors in 2001 | 5.78 | 5 | 1 | 30 | 3.80 | 97 |
| Total pay of resident directors in 2001 (KRW mil.) | 1,525.38 | 1,062.63 | 245.00 | 24,250.00 | 2,505.37 | 97 |
| Average pay of resident directors in 2001 (KRW mil.) | 298.54 | 179.00 | 58.27 | 3,464.29 | 391.80 | 97 |
| | | | | | | |
| Number of outside directors in 2002 | 3.88 | 3.25 | 1 | 9 | 2.00 | 95 |
| Total pay of outside directors in 2002 (KRW mil.) | 140.40 | 108.00 | 8.00 | 1,878.00 | 200.56 | 92 |
| Average pay of outside directors in 2002 (KRW mil.) | 34.09 | 30.00 | 4.00 | 326.61 | 32.85 | 92 |
| Number of outside directors in 2001 | 3.86 | 3.75 | 1 | 9 | 1.88 | 93 |
| Total pay of outside directors in 2001 (KRW mil.) | 115.41 | 98.50 | 18.00 | 465.00 | 78.28 | 90 |
| Average pay of outside directors in 2001 (KRW mil.) | 29.47 | 26.84 | 6.00 | 87.24 | 12.99 | 90 |
| | | | | | | |
| Total return to shareholders in 2002 (%) | 19.13 | 17.80 | -69.73 | 131.53 | 36.96 | 93 |
| Total return to shareholders in 2001 (%) | 58.16 | 59.61 | -49.40 | 180.95 | 43.09 | 94 |

| | | | | | | |
|---|---|---|---|---|---|---|
| ROA in 2002 (%) | 3.09 | 4.00 | -44.17 | 22.62 | 8.51 | 96 |
| ROA in 2001 (%) | 1.93 | 2.74 | -33.93 | 22.80 | 7.74 | 93 |

Table 3.

Pay-Performance Directional Link for Individual Companies (1)

| | Mean | Median | Min | Max | S.d | Observations |
|---|---|---|---|---|---|---|
| Δ(Total Cash Compensation) / Δ(Shareholder Value)$_{2002}$ | 0.0007246 (3.6290)*** | 0.0002568 | -0.0026474 | 0.0110671 | 0.0019461 | 95 |
| Δ(Average Cash Compensation) / Δ(Shareholder Value)$_{2002}$ | 0.0001224 (2.1787)** | 0.000052 | -0.0008077 | 0.001581 | 0.0003134 | 95 |
| Δ(Total Cash Compensation) / | 0.0004987 | 0.0002765 | -0.0110397 | 0.0139483 | 0.0021716 | 90 |

| | | | | | | |
|---|---|---|---|---|---|---|
| $\Delta$(Shareholder Value)$_{2001}$ | (3.8050)*** | | | | | |
| $\Delta$(Average Cash Compensation) / $\Delta$(Shareholder Value)$_{2001}$ | 0.0001254<br>(3.7275)*** | 0.0000565 | -0.0004957 | 0.0023247 | 0.0003192 | 90 |

Note: t-statistics in parentheses.

***: significant at 1% level, **: significant at 5% level

The change in cash compensation was computed by subtracting the amount paid in 2001 from the amount paid in 2002. The change in shareholder value was calculated for the pertinent year when the compensation was paid as well as for the preceding year of the payment made. The contemporaneous value, $\Delta$(Shareholder Value)$_{2002}$ was calculated by multiplying total shareholder return in 2002 by end 2001 market capitalization. The lagged value, $\Delta$(Shareholder Value)$_{2001}$ was calculated by multiplying total shareholder return in 2001 by end 2000 market capitalization.

Table 4.

Pay-Performance Directional Link for Individual Companies (2)

| | Mean | Median | Min | Max | S.d | Observations |
|---|---|---|---|---|---|---|
| $\Delta$ln(Total Cash Compensation) / $\Delta$ln(Shareholder Value)$_{2002}$ | 0.0073645 (4.8425)*** | 0.0064922 | -0.326058 | 0.666695 | 0.146662 | 93 |
| $\Delta$ln(Average Cash Compensation) / $\Delta$ln(Shareholder Value)$_{2002}$ | 0.0091492 (6.2706)*** | 0.0068782 | -0.0289609 | 0.621024 | 0.014078 | 93 |
| $\Delta$ln(Total Cash Compensation) / $\Delta$ln(Shareholder Value)$_{2001}$ | 0.007044 (4.5131)*** | 0.0064566 | -0.0332284 | 0.0617987 | 0.0147236 | 90 |
| $\Delta$ln(Average Cash Compensation) / $\Delta$ln(Shareholder Value)$_{2001}$ | 0.0089887 (6.0006)*** | 0.0071786 | -0.288672 | 0.061516 | 0.0142109 | 90 |

Note: t-statistics in parentheses.

***: significant at 1% level

Table 5.

Pay-Performance Sensitivity – Regression Results

| | *Dependent Variable:* | |
|---|---|---|
| Independent Variable | Δ(Total Cash Compensation) | Δ(Avg Cash Compensation) |
| A. Change in Shareholder Wealth in 2002 | | |
| Intercept | 63.22458 | 46.33043 |
| | (0.64) | (2.76) |
| Δ(Shareholder Wealth)$_{2002}$ | 0.0001687 | 0.0000239 |
| | (11.24)*** | (9.38)*** |
| Adjusted $R^2$ | 0.5716 | 0.4807 |
| Sample Size | 95 | 95 |
| B. Change in Shareholder Wealth in 2001 | | |
| Intercept | 100.0446 | 529.4132 |
| | (0.88) | (2.81) |
| Δ(Shareholder Wealth)$_{2001}$ | 0.0001765 | 0.0002485 |
| | (9.33)*** | (7.95)*** |
| Adjusted $R^2$ | 0.4913 | 0.4113 |
| Sample Size | 90 | 90 |

Note: t-statistics in parentheses.

***: significant at 1% level

Table 6.

Pay-Performance Elasticity and Semi-Elasticity – Regression Results

| | *Dependent Variable:* | |
|---|---|---|
| Independent Variable | Δln(Total Cash Compensation) | Δln(Avg Cash Compensation) |
| A. Change in Shareholder Value in 2002 | | |
| Intercept | 0.3113107 | -0.9689283 |
| | (0.37) | (-1.22) |
| $\Delta\ln(\text{Shareholder Value})_{2002}$ | -0.0040386 | 0.0446358 |
| | (-0.13) | (1.54) |
| Adjusted $R^2$ | -0.0108 | 0.0146 |
| Sample Size | 93 | 93 |
| B. Change in Shareholder Value in 2001 | | |
| Intercept | -1.676106 | -1.523532 |
| | (-1.84)* | (-1.74)* |
| $\Delta\ln(\text{Shareholder Value})_{2001}$ | 0.685553 | 0.649407 |
| | (2.06)** | (2.02)** |
| Adjusted $R^2$ | 0.0350 | 0.0337 |
| Sample Size | 90 | 90 |
| | | |
| C. ROA in 2002 | | |
| Intercept | 0.1965365 | 0.253876 |
| | (4.62) | (6.21) |
| Δ(ROA 02) | 0.0018928 | -0.000014 |
| | (0.30) | (-0.00) |
| Adjusted $R^2$ | -0.0100 | -0.0110 |
| Sample Size | 93 | 93 |
| D. ROA in 2001 | | |
| Intercept | 0.1963008 | 0.2484929 |
| | (4.46) | (5.88) |
| Δ(ROA 01) | 0.0003949 | 0.001114 |

| | | |
|---|---|---|
| | (0.06) | (0.18) |
| Adjusted $R^2$ | -0.0115 | -0.0111 |
| Sample Size | 89 | 89 |

Note: t-statistics in parentheses.

Table 7.

Relative Performance Evaluation (RPE) - Multiple Regression Results

| | *Dependent Variable:* | |
|---|---|---|
| Independent Variable | Δln(Total Cash Compensation) | Δln(Avg Cash Compensation) |
| A. 2002 | | |
| Intercept | 0.230236 | 0.2607526 |
| | (5.07) | (5.92)*** |
| Ln(1+Sh Ret 02) | -0.1439176 | -0.0965736 |
| | (-1.23) | (-0.85) |
| Ln(1+Ind Ret 02) | 0.16891348 | -0.0525344 |
| | (0.89) | (-0.29) |
| Adjusted $R^2$ | 0.0052 | -0.0135 |
| Sample Size | 93 | 93 |
| B. 2001 | | |
| Intercept | 0.0187251 | 0.0181168 |
| | (0.14) | (0.13) |
| Ln(1+Sh Ret 01) | 0.4185521 | 0.4199023 |
| | (3.11)*** | (3.12)*** |
| Ln(1+Ind Ret 01) | 0.0266228 | 0.0253194 |
| | (0.14) | (0.07) |
| Adjusted $R^2$ | 0.0828 | 0.0833 |
| Sample Size | 94 | 94 |

Note: t-statistics in parentheses.

Figure 1. Total Executive Cash Compensation in 2002

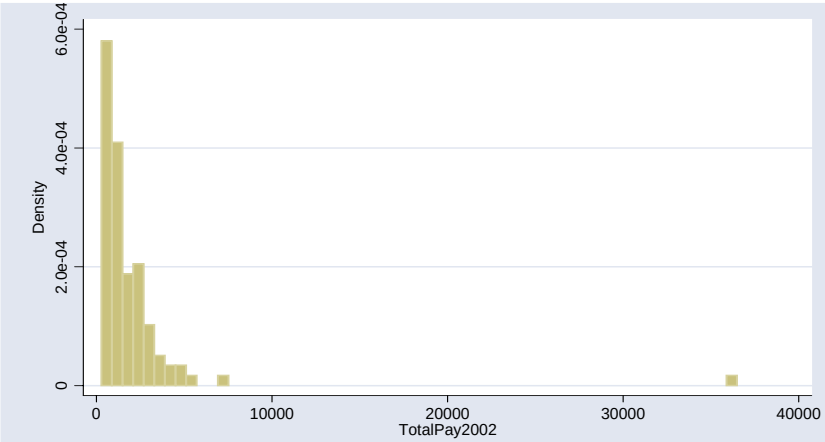



Figure 2. Total Executive Cash Compensation in 2001

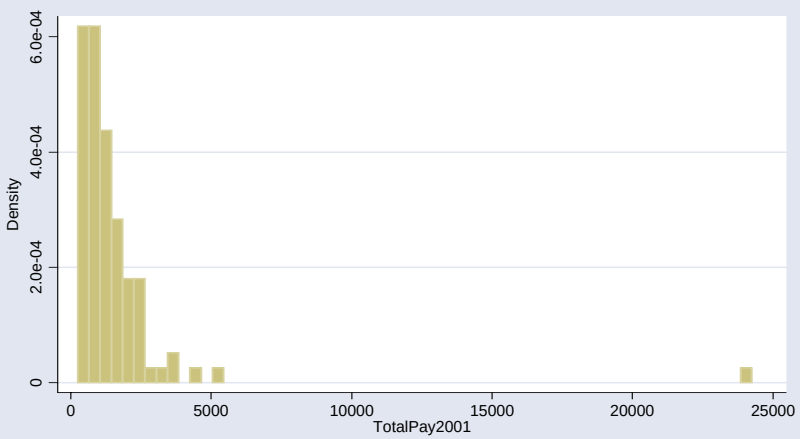



Figure 3. Average Executive Cash Compensation in 2002

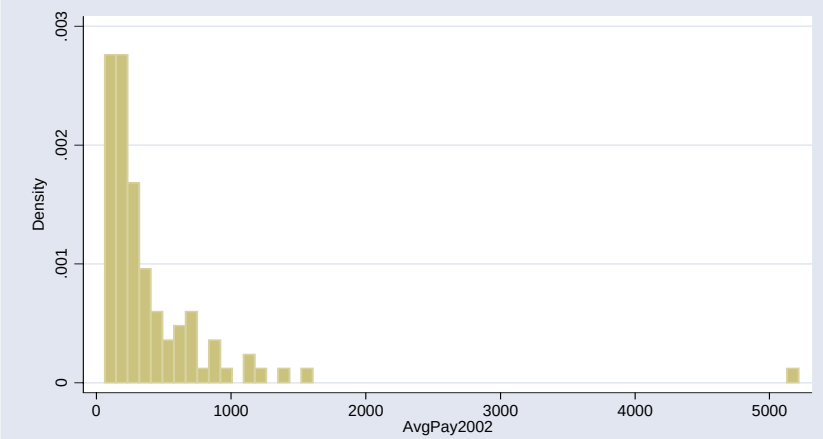



Figure 4. Average Executive Cash Compensation in 2001

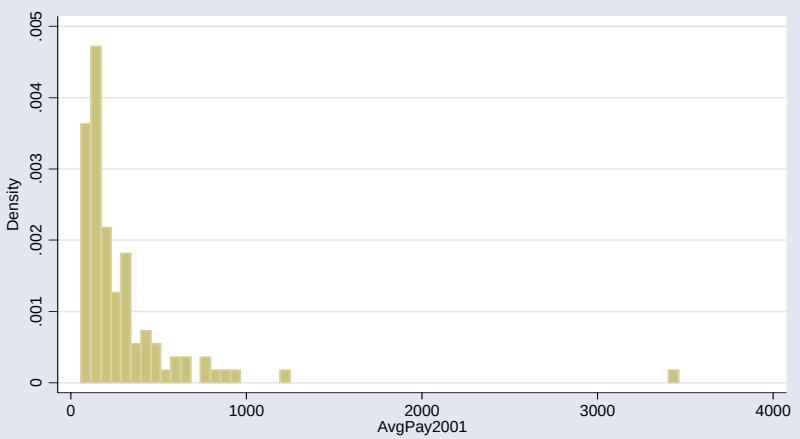


Figure 5. Logarithm of Total Cash Compensation in 2002

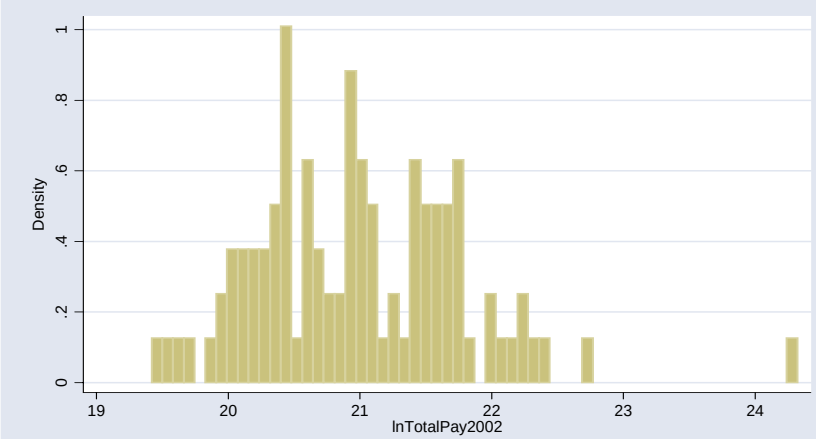



Figure 6. Logarithm of Total Cash Compensation in 2001

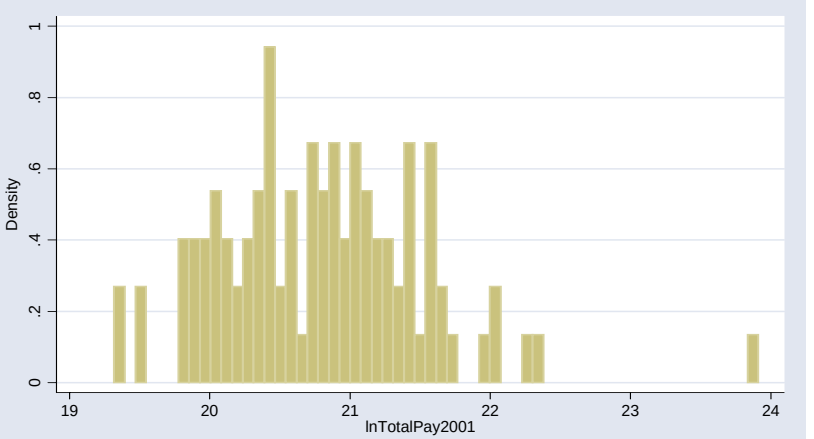



Figure 7. Logarithm of Average Cash Compensation in 2002

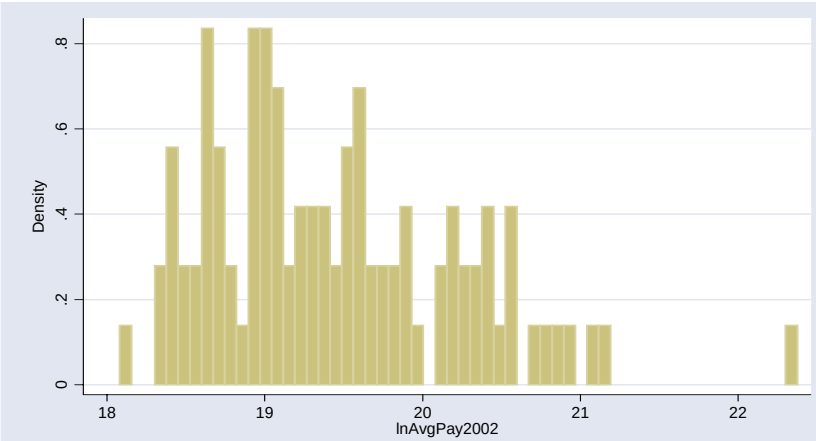



Figure 8. Logarithm of Average Cash Compensation in 2001

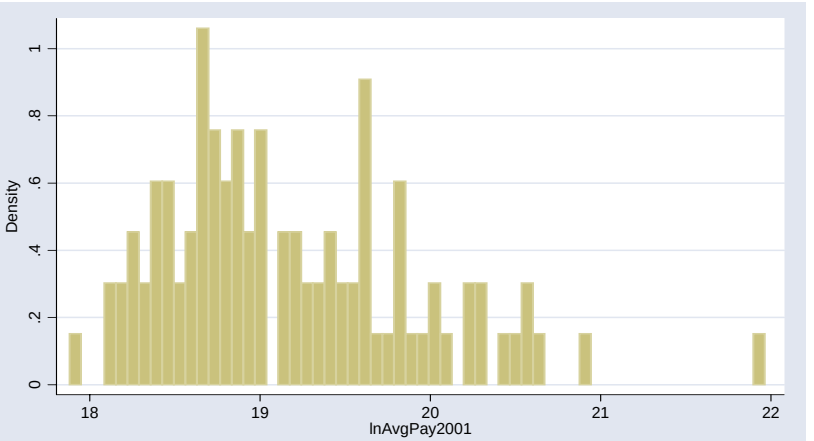


Figure 9. Scatter Plot - Change in Total Cash Compensation and Change in Shareholder Value in 2002

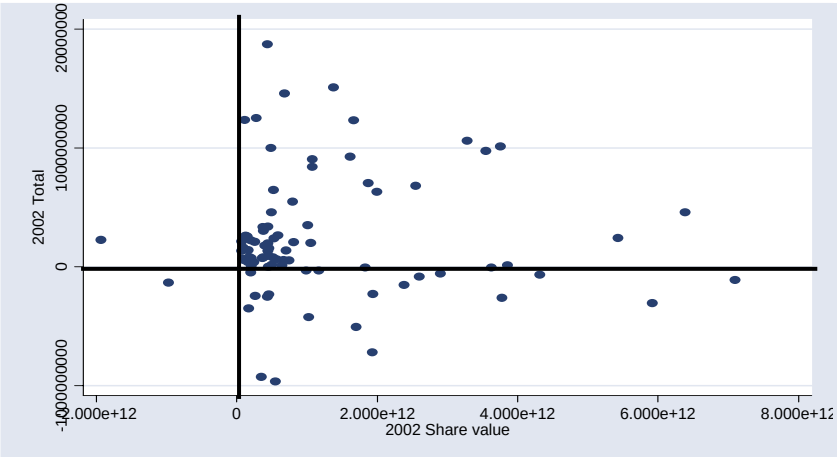



Figure 10. Scatter Plot - Change in Total Cash Compensation and Change in Shareholder Value in 2001

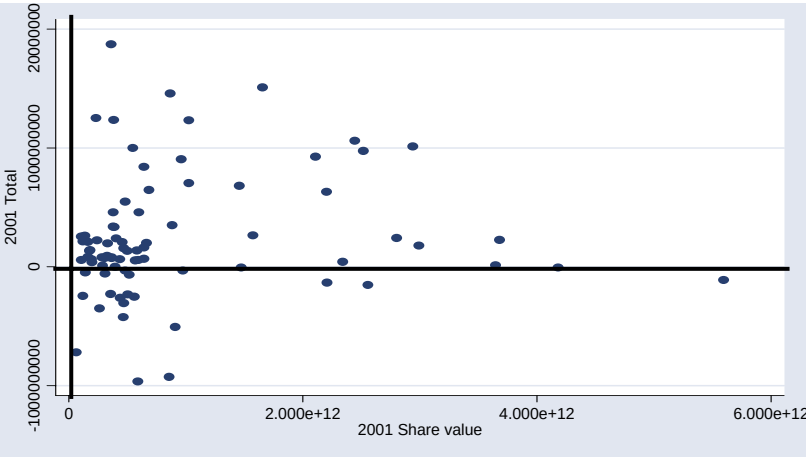



Figure 11. Scatter Plot - Change in Average Cash Compensation and Change in Shareholder Value in 2002

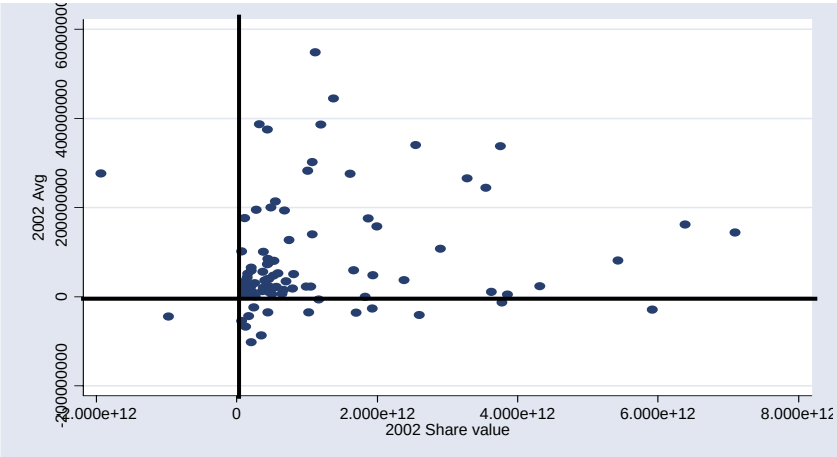
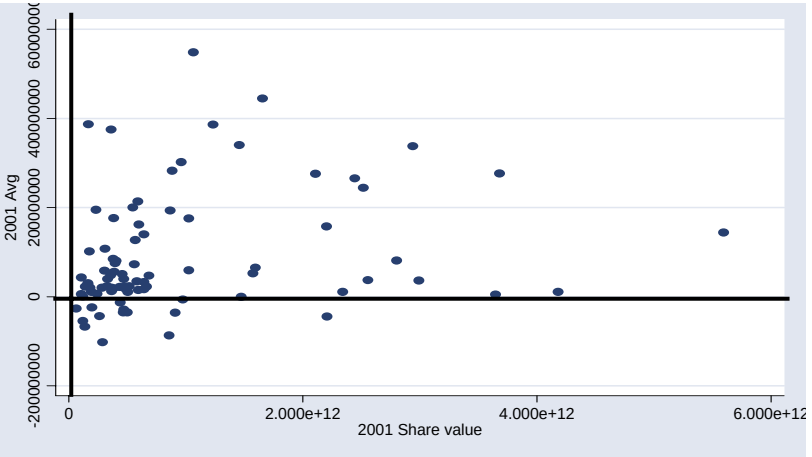



Figure 12. Scatter Plot - Change in Average Cash Compensation and Change in Shareholder Value in 2001



# APPENDICES

## APPENDIX A

Best Practices for Executive Director Remuneration

The International Corporate Governance Network (ICGN)

The ICGN's recommended best practices include:

1. Remuneration committees composed of truly independent directors should be responsible for designing and controlling executive remuneration schemes.

2. Remuneration committees should publish statements on expected outcomes of remuneration structures and prepare remuneration reports that are approved by the board, included in annual reports provided to investors and, where legally allowed, approved by shareholders.

3. Remuneration committees should hire and fire consultants retained to address executive and/or director remuneration.

4. All aspects of remuneration of key executives and directors, including salary, short- and long-term bonuses, other incentives, benefits, perquisites and other cash/non-cash payments should be disclosed to investors.

5. Substantial, direct stock ownership by key executives and directors is the best way to align management and investor interests.

6. Remuneration should be linked to appropriate short- and long-term performance measures, and final payments under short- and long-term incentive arrangements should not be disproportionate to performance.

7. Options should not be the sole long-term incentive. Ideally options and other share-based payments should have vesting terms of at least three years and be granted at regular intervals. Repricing of these instruments should not be made without shareholder approval.

8. Options and other share-based payments should be expensed on income statements provided to investors.

9. Employment contracts should not be used as retention devices or provide coverage for terms in office longer than twelve months.

10. Companies should not loan money to executives or pay bonuses based solely on the completion of mergers and acquisitions.

11. Institutional investors should increase the resources devoted to analyzing remuneration issues and remuneration proposals.

## APPENDIX B

Hermes Investment Management Group

Statement on UK Corporate Governance & Voting Policy – 2001

REMUNERATION

1. GENERAL PRINCIPLES

1.1. Performance-related remuneration is the principle means by which Eds are motivated to achieve greater shareholder value and are rewarded for doing so. It is therefore an area of company policy in which shareholders have a valid role

1.2. Remuneration committees of independent NEDs are best placed to decide the remuneration packages necessary to recruit, retain, and motivate executives. They should take professional advice as necessary. Where independent advisers are appointed they should be responsible to the remuneration committee and not the company's Eds. Consideration should be given to naming the advisers in the board's remuneration report. Hermes encourages companies to put the board's remuneration report to a vote at the AGM, particularly where significant changes are made to policy or controversial issues arise during the year.

1.3. Remuneration is a package. Actual and potential rewards should not be excessive; scrutiny from informed observers should not diminish the legitimacy of the executive team in the eyes of shareholders or employees. Performance-related remuneration should be aligned over time with returns earned by shareholders. Increases in remuneration should be driven by improved performance and should not just be a matter of annual appreciation

1.4. Companies should require all directors to build over a period of time a substantial shareholding, say to the value of at least one year's emoluments. For NEDs, one way of achieving this is to pay them partly in shares which must be retained whilst they hold office. NEDs who are executives elsewhere, and whose fees are paid to their primary employer, should receive the share component of their fee. NEDs should not participate in performance-related pay or incentive schemes.

1.5. Hermes recognises the difficulty faced by companies with international operations when designing remuneration packages, particularly incentive schemes. Although it is accepted that companies have to offer packages that are competitive in the local market there are certain features that should be universal.

1.6. Hermes will assess all schemes individually, taking into account the particular circumstances of the company, but sound reasons would need to be given by a remuneration committee proposing a scheme that did not comply with the spirit

of the above principles.

## 2. CONTRACTS

2.1. Hermes prefers that executives be appointed on one-year rolling contracts. Executives appointed on a two-year fixed contract that subsequently reduces to a one-year rolling contract will also be supported. Hermes does not currently vote against existing directors with two-year rolling contracts but recommends that these be reduced to one year, without compensation, as a show of leadership. Contracts with a clause that increases compensation paid for yearly termination in the event of a take-over are not supported.

## 3. INCENTIVE SCHEME PRINCIPLES

3.1. Incentive schemes should be designed to reward exceptional performance. Awards should be scaled against achievement of performance criteria, with a relatively low payout if the minimum target is achieved and full payout only for truly exceptional performance. No award should be made where targets are not met. The measure used will vary depending on the type of incentive but performance should be compared to an appropriate benchmark or peer group. Awards should not be made unless there has been improvement in the underlying real financial position of the company. Where comparative performance against a peer group is used as the measure awards should generally not be made when company performance is below median. Earnings per share growth of RPI+2% a year is not a suitably challenging performance target for the majority of companies.

3.2. Performance measurement and vesting periods should ideally be five years although a minimum of three years will be considered. A further holding period between vesting and sale is encouraged.

3.3. Share matching schemes should be subject to challenging performance criteria and grants made should not be overly generous.

3.4. Remuneration committees should explain proposed schemes clearly to shareholders, justifying the structure of the scheme and the relevance of the performance criteria chosen. Schemes should be structured as simply as possible to ensure they can be understood by participants and monitored by shareholders. The link between company performance and executive reward should be clear. The effect of the scheme should be illustrated with examples showing rewards at various performance levels for one of the participants, say, the chief executive.

3.5. The dilution guidelines published by the Association of British Insurers should be observed.

3.6. Where annual grants are made there should be no retesting periods; of the performance targets are not met the award for that year should be foregone.

3.7. Where remuneration committee have authority to vary incentive schemes they should only do so in exceptional circumstances and to ensure that the scheme continues to motivate executives. All changes should be reported and justified to shareholders.

3.8. Companies should confirm continuing shareholder support for a scheme during its lifetime, giving shareholders an opportunity to reassess the scheme in light of actual payout levels.

3.9. Companies should have only one executive long-term incentive scheme in place; exceptions should be justified in the remuneration report. Executives should not be awarded twice for the same performance. Remuneration committees should take into consideration the number of options outstanding and the remaining period for which they are exercisable when making grants under a newly introduced performance share scheme.

3.10. The annual report should disclose the level of recent grants made under any existing incentive scheme, the performance criteria applied to the grants, and any grants resulting from grants made in previous years. The actual performance resulting in the vesting of grants should be disclosed and clearly explained.

## 4. INCENTIVE SCHEME STRUCTURE

### 4.1. Share option schemes

Share option schemes are both popular and widely criticised. Participants can be rewarded for market rises on which they had no influence, they bear no risk (unprofitable options are simply not exercised) and seldom retain shares they exercise. Requirements for the share price to exceed a benchmark and for executives to retain a minimum shareholding partly address these points.

### 4.2. Performance share plans

In Hermes' view, schemes based on the grant of shares are profitable to many share option schemes. It is difficult to specify an appropriate level of grant (eg 50% or 100% of base salary) because companies give different weights to base salary and performance pay. Remuneration committees should be mindful that, unlike options, the full value of the shares (less taxes) will be received by the participants if the performance criteria are met. The over-riding principle, that grants should not be excessive, should be observed. Performance should be measured on a total shareholder return basis against a suitable peer group, either a public index or a specially constructed one.