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# EXECUTIVE COMPENSATION AND FIRM PERFORMANCE IN KOREA

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## ABSTRACT

This paper provides the first rigorous econometric estimates on the pay-performance relations for executives in Korea. To do so, we have assembled for the first time a pooled cross-sectional time-series dataset on 251 firms that were included in KOSPI200 for at least two consecutive years from 1998 to 2001. Contrary to a popular belief that Korean corporate governance and the structure of Korean executive compensation is considerably different from elsewhere in the West, we find that cash compensation of Korean executives is statistically significantly related to stock market performance and that the magnitude of the sensitivity of pay to stock market performance is comparable to Japan and the U.S. Moreover, alternative performance measures (such as accounting performance and sales) is found to play a less important role in the determination of Korean executive compensation. Finally, we find evidence that non-Chaebol firms structure their executive compensation so as to reward their executives for improving shareholder value more so than Chaebol firms. The evidence is consistent with the recent literature on the nature of Chaebols in Korea.

**JEL: M12, M52, J33, G30, O53**
**Keywords: executive compensation, corporate governance, and Korea.**

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# EXECUTIVE COMPENSATION AND FIRM PERFORMANCE IN KOREA

## I. Introduction

While there has been an explosion in research on executive compensation in U.S. firms in recent years,[1] systematic research on executive compensation outside of the U.S., in particular in Asia, is still relatively scarce mostly due to the limited data availability. Specifically, unlike in the U.S., Asian firms have not been required to disclose information on compensation for any individual executives, and hence compensation data on individual executives of Japanese corporations have not been available for researchers.

Though not required to report salary and bonus of CEOs, however, Japanese corporations are required to report total salary and bonus earned by all directors, and such aggregate executive compensation data are readily available annually over an extended period of time.[2] A few studies have exploited this aggregate data set of Japanese publicly traded firms and have examined the determinants of executive compensation in Japan.[3]

Except for Japan, however, no attempt has been made to estimate the pay-performance relations for executives of Asian firms. This paper fills an important gap in the literature by providing the first rigorous econometric evidence on the pay-performance relations of Korean executives, using new panel data on executive compensation of over 200 leading corporations listed in KSE (Korea Stock Exchange) over the period of 1998-2001. In so doing, the paper contributes to one of the most important recent public-policy debates in Asia, or corporate governance reform.[4]

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[1] A number of excellent surveys on this literature are available. See, for example, Murphy (1999) for the mostly empirical literature and Gibbons and Waldman (1999) for the largely theoretical literature. For an authoritative survey of earlier work, see Rosen (1990) who concludes his survey by urging scholars to broaden their inquiry beyond the U.S. to other countries.

[2] Nikkei NEEDS database is perhaps the most convenient way to get these panel data.

[3] See, for instance, Kaplan (1994), Xu (1997), Ang and Constand (1997), Joh (1999) and Kubo (2001). For studies using an alternative income tax return data set in Japan, see Kato and Rockel (1992a) and Kato (1997).

[4] See, for example, Nam (2002), Ahmadjian (2001), Black, Jong and Kim (2003) for the current debate on corporate governance reform in Asia.

The proponents of such reform argue that Asian corporate governance is not sufficiently oriented towards shareholders and recommend changes that will bring Asian corporate governance more in line with the Anglo-American model. In fact, some of their recommendations have been already implemented.[5] Unfortunately, however, existing evidence on the nature of managerial incentives in Asian firms is limited and mixed. The present study provides the first systematic evidence on the pay-performance relations for Korean executives and thus offers important information currently missing in the debate.

Specifically, contrary to a popular belief that Korean corporate governance and the structure of Korean executive compensation is vastly different from elsewhere in the West, we find that cash compensation of Korean executives is statistically significantly related to stock market performance and that the magnitude of the sensitivity of pay to stock market performance is comparable to Japan and the U.S. Moreover, alternative performance measures (such as accounting performance and sales) turn out to play a less important role in the determination of Korean executive compensation. Finally, we find that non-Chaebol firms appear to structure their executive compensation so as to reward their executives for improving shareholder value more so than Chaebol firms. The evidence is consistent with the recent literature on the nature of Chaebols in Korea.

In the next section we begin with background information on Korean executive compensation and corporate governance with particular emphasis on Chaebols, and then introduce the data and describe our empirical strategy in Section III. The results are presented in Section IV, followed by a concluding section.

## II. Corporate Governance and Chaebols in Korea

[5] See, for example, Republic of Korea (2003).

Since the financial crisis of 1997/98, many scholars started to show interest in large business groups of East Asia. They particularly showed interest in the separation of ownership and control rights resulting from stock pyramids and cross-ownership of equity dominant in Asian business groups. For example, Claessens, Djankov, and Lang (2000) document the separation of ownership and control in nine East Asian countries and show that such separation is most pronounced among family-controlled firms.[6] In their study of eight East Asian countries, Claessens, Djankov, Fan, and Lang (2002) show that firm value falls when the control rights of the largest shareholder exceed its cash-flow ownership, consistent with the an entrenchment effect.[7] Another line of research investigates the performance of East Asian firms during the crisis. For example, Mitton (2002) documents that in five crisis-hit countries, significantly better stock price performance is associated with firms that had higher quality of corporate governance.[8] In their study of eight East Asian countries, Lemmon and Lins (2003) show stock returns of firms in which managers have high levels of control rights, but have separated their control and cash flow ownership, are significantly lower than those of other firms during the crisis period.[9]

There are also a number of Korea specific papers studying the behavior of *chaebols*, family-controlled large business groups in Korea. Form example, Joh (2003) shows that firms affiliated to a *chaebol* group experienced lowers operational profits during the pre-crisis period.[10] Baek, Kang, and Park (2003) and Kim and Lee (2003) show that this was also the

[6] They study Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand.

[7] They study Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand.

[8] They study Korea, Malaysia, the Philippines, and Thailand.

[9] They study Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand

[10] She uses top-70 *chaebols*. She constructs this list by adding 40 additional *chaebols* to the top-30 *chaebols* classified by the Korea Fair Trade Commission (KFTC). KFTC announces the list for its own purpose to restrict equity investments, mutual debt guarantees, and mutual shareholdings among group-affiliated firms. KFTC defines a *chaebol* as "a group of companies of which more than 30% of its shares are owned by the group's controlling shareholder and its affiliated companies." Each year, the KFTC ranks business groups according to the size of their total assets and identifies the 30 largest business groups.

case for stock price performance during the crisis period.[11] Campbell and Keys (2003) also show that firms affiliated with the top five *chaebols* exhibit significantly lower performance and significantly higher sales growth relative to others during the 1993-1999 period. Jung and Kwon (2002) look at earnings informativeness instead of firm performance. They show that in *chaebol* firms, as opposed to non-*chaebol* firms, no significant relationship is found between the largest shareholder's holdings and earnings informativeness.[12]

There are three additional papers more closely related to our project. Bae, Kang, and Kim (2002) show that when a *chaebol*-affiliated firm makes an acquisition, its stock price on average falls, but the market value of other firms in the group rises.[13] This evidence tells that while minority shareholders of a *chaebol*-affiliated firm making an acquisition loses, the controlling shareholder of that firm on average benefits. This result is relevant to our research because it shows that *chaebol*-affiliated firms are not independently run, but operated to maximize the interest of the overall group or the controlling family's interest. This is more evident in internal capital market studies. For example, Shin and Park (1999) show that investment-cash flow sensitivity is low and insignificant for *chaebol* firms but is high and significant for non-*chaebol* firms.[14] They also show that a *chaebol* firm's investment is significantly affected by the cash flow of other firms within the same *chaebol* group even though they are independent legal entities.

Such evidence suggests that group's interest might be considered in the top executive replacement decisions too. That is, if group chairman or controlling shareholder mandates top executives to pursue the interest of *chaebol* as a whole, executive turnover might be insensitive to individual firm-level performance. Campbell and Keys (2003) shows exactly such evidence. Using data between 1993 and 1999, they show that top executive turnover in

[11] Both studies use top-30 *chaebols* as their base, but conduct robustness checks with top-50 and top-70 *chaebols*.

[12] They use top-30 *chaebols*.

[13] They use top-30 *chaebols*.

[14] They use top-30 *chaebols*.

firms affiliated to top five *chaebols* is unrelated to firm-level performance. On the other hand, they show that managers of firms unrelated to the top five *chaebols* are significantly more likely lose their job when performance deteriorates.

In this paper, we intend to uncover similar evidence in the determination of executive compensation. That is, if top executives of *chaebol* are mandated to pursue the interests of the overall group, and not the shareholders' interest of the firm he or she works for, their cash compensation would be less sensitive to firm-level performance compared to those firms unaffiliated to any *chaebol* group.

Institutional information on who sets executive compensation and how it is set is very limited in Korea. It is very rare for companies to have compensation committees and even for firms that do have such a committee, they do not disclose any of their activity. One exception is the SOEs that are subject to the "State Owned Enterprise Management Improvement and Privatization Act." According to this act, the companies have to disclose in the proxy statement detailed performance evaluation and compensation contract of the CEO. The Act also explicitly states that CEO compensation should be linked to firm performance. Currently, FSC (Financial Supervisory Commission) tried to disclose cash compensation of individual board members. However, MOFE (Ministry of Finance and Economy) is opposing this idea.

## III. Data and Empirical Strategy

We assembled for the first time a pooled cross-sectional time-series dataset on 251 firms that were included in KOSPI200for at least two consecutive years from 1998 to 2001.[15] Specifically, we constructed the dataset by merging the following three separate databases.

[15] The KOSPI 200, which is underlying index for stock index futures and options trading, is composed of 200 blue chips and accounts for about 90 percent of the total market capitalization. The constituent stocks are selected on the basis of the market value of the individual stocks, liquidity and their relative positions in the industry groups they belong. Its base date is January 3, 1990 and the base index is 100.

First, we used annual reports of all firms included in each year's KOSPI200 for 1998-2001 and collected data on TPAY (total annual cash compensation of all directors) and APAY (total annual cash compensation of all directors per director). Second, we assembled data (annually for 1989-2001) on stock returns for all KOSPI200 firms from the Korea Securities Research Institute's stock market return database. Finally, from the Korea Listed Companies Association (KLCA)'s database, we collected corporate accounting data, such as sales, profit and asset annually for the relevant period for all KOSPI200 firms. All three databases were merged by using unique company codes that are common for all three databases. All variables were adjusted for inflation using CPI.

Most empirical studies on executive compensation use data on compensation for individual executives (typically CEOs) of U.S. firms,[16] and perhaps the closest study to ours is Kaplan (1994) that used similar aggregate compensation data for Japanese firms listed in Tokyo Stock Exchange and studied the pay-performance relationships for Japanese directors. We begin with estimating the pay-performance "semi-elasticities" equations,[17] following Kaplan (1994) . That is,

(1) $\Delta \ln(PAY)_{it} = \alpha + \beta_r ROR_{it} + u_{it}$

(2) $\Delta \ln(PAY)_{it} = \alpha + \beta_d \Delta(ROA)_{it} + u_{it}$

(3) $\Delta \ln(PAY)_{it} = \alpha + \beta_g SALEGROW_{it} + u_{it}$

(4) $\Delta \ln(PAY)_{it} = \alpha + \beta_n NEGPROF_{it} + u_{it}$

(5) $\Delta \ln(PAY)_{it} = \alpha + \beta_r ROR_{it} + \beta_d \Delta ROA_{it} + \beta_g SALEGROW_{it} + \beta_n NEGPROF_{it} + u_{it}$

where $PAY_{it}$ is executive compensation of Firm i in Year t, measured by $TPAY_{it}$ (total annual cash compensation of all directors in 1995-constant won) and $TPAY_{it}$(total annual cash compensation of all directors per director in 1995-constant won);[18] $ROR_{it}$ is Stock returns of

[16] See, for example, Murphy (1998) and Rosen (1992) for an excellent survey of the literature.
[17] See Rosen (1992).
[18] Unfortunately, like most prior studies, we do not have data on non-cash compensation.

Firm i in Period t; $ROA_{it}$ is Return On Asset (Profit/Asset) of Firm i in Year t; $SALEGROW_{it}$ is Rate of Growth of Sales of Firm i in Year t; $NEGPROF_{it}$ is a dummy variable that takes a value of 1 if Firm i's profit in Year t is negative, 0 otherwise. For the disturbance term, $u_{it}$, we assume $u_{it} \sim NID(0, \sigma^2)$.[19]

The value of $\beta_r$ indicates the responsiveness of pay to stock returns (or a standard stock market performance measure) and likewise, the value of $\beta_d$ gauges the responsiveness of pay to ROA (or a standard accounting firm performance measure). The sign and significance of the estimated coefficients on $SALEGROW_{it}$ will tell us whether executive compensation is structured so as to reward directors for pursuing alternative firm objectives, in particular sales in Korea. Kaplan (1994) considered $NEGPROF_{it}$ which takes a value of one if the firm i's profit (net income) is negative in Year t, and found that Japanese executives are indeed penalized significantly when their firm's profit is negative. We test whether this is also the case in Korea by considering this variable here as well.[20]

Eq. (1)-(4) estimate the responsiveness of pay to the four performance variables individually whereas Eq. (5) considers all four performance variables simultaneously and thus the estimated coefficient on each performance variable indicates the relative importance of each performance variable.

We also estimate each equation with and without year effects to see if controlling for time-specific shocks that are common to all firms change the results.

Next, to test our hypothesis developed in the previous section that the pay-performance relations are stronger for non-Chaebol firms than for Chaebol firms, we

[19] Kaplan (1994) also considered lagged performance variables. We also considered such lagged performance variables and found that these lagged performance variables have no statistically significant relationship with pay and that the estimated coefficients on contemporaneous performance variables change very little by adding the lagged variables. These results as well as all other unreported results are available from the authors upon request.

[20] Since both pay and performance variables are first-differenced in Eq. (2), all firm fixed effects that may affect the level of pay are controlled for.

classify all firms into Chaebol and non-Chaebol firms by going over the Korea Fair Trade Commission (KFTC) press releases on large business groups.[21] We then estimate Eq. (1)-(5) for non-Chaebol firms and Chaebol firms separately (and with and without year effects).

Descriptive statistics for key variables are summarized in Table 1 where all value variables are in 1995-constant won. Over the sample period of 1998-2001 total cash compensation of all directors of KOSPI200 firms was on average about 1.5 billions of 1995-constant won and the average director earned approximately 103 millions of 1995-constant won. Chaebol firms tend to pay their directors more than non-Chaebol firms (2.3 billions of 1995-constant won vs. 0.9 billions of 1995-constant won for TPAY and 136 millions vs. 80 millions for APAY).

Over the sample period total cash compensation of all directors rose by 9.6 percent per year in real terms whereas the average director's cash compensation increased by 10.1 percent per year. A gap in the pay increase between Chaebol and no-Chaebol firms is small.

The average rate of inflation-adjusted stock return was 2.4 percent over the sample period and it was higher for non-Chaebol firms than for Chaebol firms (2.9 vs. 1.7 percent). The data also show a modest fall in ROA on average each year over the sample period (0.3 percentage-point fall). Non-Chaebol firms experienced a fall (0.6 percentage-point fall) whereas Chaebol firms enjoyed a slight increase (0.2 percentage-point increase). Overall, sales grew over the sample period by 15.8 percent per year in real terms. Chaebol firms grew faster than non-Chaebol firms (17.6 vs. 14.6 percent). Finally, the average likelihood of making a negative profit was about 10 percent for all firms. Non-Chaebol firms are much more likely to make a negative profit than Chaebol firms (14 vs. 4.5).

[21] Following most prior studies on Korean Chaebols, we used top 30 Chaebols.

## VI. Results

Tables 2 presents the OLS estimates of Eq. (1)-Eq. (4) for our full sample including both Chaebol and non-Chaebol firms with and without year effects, using total annual cash compensation of all directors (TPAY). As shown in Table 1, the estimated coefficients on stock returns are positive and statistically significant whereas the estimated coefficients on all other performance variables are not statistically significant at the 10 percent level. Specifically, without year dummy variables, the estimated coefficient on stock returns is 0.229 and statistically significant at the 5 percent level. When year effects are included, the estimated coefficient on stock returns falls somewhat to 0.194 yet is still statistically significant at the 10 percent level. The estimated coefficients for example suggest that a 100 percent increase in stock price will result in a 19 to 23 percent increase in total annual cash compensation of all directors. Such magnitude of the responsiveness of pay to stock returns is comparable to what Kaplan (1994) found for Japan.

Table 3 shows the OLS estimates of Eq. (5) for all firms with and without year effects, using total annual cash compensation of all directors (TPAY). First and most importantly, the estimated coefficient on stock returns changes very little and is again statistically significant at the 5 percent level (at the 10 percent level with year dummy variables) even when controlling for the other three performance variables. As such, the statistically significant link of pay to stock returns appears to be robust.

Second, when all four performance variables are considered simultaneously, the estimated coefficient on ΔROA (our accounting performance measure) is positive and statistically significant at the 10 percent level with and without year dummy variables. The

size of the estimated coefficients suggest that a 1 percentage-point increase in ROA leads to a 0.7 percent increase in total annual cash compensation of all directors. Again, the size of the responsiveness of pay to ROA found for Korean firms is comparable to what Kaplan (1994) discovered for Japanese firms.

Tables 4 and 5 repeat the same analysis using APAY (total annual cash compensation of all directors per director) instead of TPAY. The results are by and large similar to Tables 2 and 3 although all coefficients are less precisely estimated.

To examine the differences in the pay-performance relations between non-Chaebol firms and Chaebol firms, we estimated Eq. (1)-(5) for non-Chaebol firms and Chaebol firms separately. The results using TPAY are summarized in Tables 6A, 6B, and 7 and likewise the results using APAY in Tables 8A, 8B, and 9. The differences between non-Chaebol and Chaebol firms are pronounced. As shown in Tables 6A and 6B, for non-Chaebol firms the estimated coefficient on stock returns is positive and still statistically significant at the 10 percent without time dummy variables (and close to significant with time effects) while for Chaebol firms the estimated coefficient on stock returns is not at all significant. When we consider all four performance variables together, as shown in Table 7, we observe the same contrast between non-Chaebol and Chaebol firms. Both stock returns and ROA appear to matter for the determination of executive compensation for non-Chaebol firms (the estimated coefficients on stock returns and $\Delta$ROA are statistically significant at the 10 percent level without time dummy variables and they are close to significant with time dummy variables) whereas executive compensation is not significantly related to either performance measure.

When we use APAY, we find similar differences between non-Chaebol and Chaebol firms and actually the differences are even more pronounced. As shown in Tables 8A and 8B, the estimated coefficients on stock returns for non-Chaebol firms are positive and

statistically significant (at the 5 percent level without time dummy variables and at the 10 percent level with such variables) whereas the estimated coefficients on stock returns for Chaebol firms are not at all statistically significant (in fact negative). The findings support our hypothesis developed earlier that executive compensation is more strongly linked to firm performance (in particular stock returns) in non-Chaebol firms than in Chaebol firms. Table 9 confirms that our conclusion is not sensitive to whether we consider all performance variables simultaneously or individually.

Though our data are not strictly comparable to individual compensation data used by most U.S. studies, it may still be useful to contrast our Korean evidence to U.S. evidence. To this end, following Murphy (1998), we estimated the elasticity of pay with respect to shareholder value by regressing $\Delta \ln(PAY)_{it}$ on $\ln(1+ROR_{it})$.[22] As shown in Table 10, to be consistent with our earlier estimates, for all firms, the estimated elasticity of pay with respect to shareholder value is positive and statistically significant at the 5 percent level when TPAY is used; and for non-Chaebol firms, the estimated elasticity of pay with respect to shareholder value is positive and statistically significant at the 5 percent level regardless of the choice of pay variables (TPAY or APAY). The sizes of the estimated elasticities range from 0.29 to 0.34, suggesting a 10 percent increase in shareholder value leading to around 3 percent increase in annual cash compensation of Korean directors. The Korean pay-performance elasticity estimates that we obtained are similar to what Murphy (1998) found for S&P 500 Industrials in the U.S. in the first half of the 1990s.

## V. Conclusions

[22] We also estimated the sensitivities of pay with respect to shareholder value by regression $\Delta(PAY)_{it}$ on $\Delta(\text{Shareholder Value})_{it}$. Unfortunately, the sensitivities were imprecisely estimated due to a poor fit.

This paper has provided the first rigorous econometric estimates on the pay-performance relations for Korean directors. To do so, we have assembled for the first time a pooled cross-sectional time-series dataset on 251 firms that were included in KOSPI200 for at least two consecutive years from 1998 to 2001.

Contrary to a popular belief that Korean corporate governance and the structure of Korean executive compensation is vastly different from elsewhere in the West, we have found that cash compensation of Korean executives is statistically significantly related to stock market performance and that the magnitude of the sensitivity of pay to stock market performance is comparable to Japan and the U.S. Moreover, alternative performance measures (such as accounting performance and sales) turned out to play a less important role in the determination of Korean executive compensation.

Finally, we have found evidence that non-Chaebol firms appear to structure their executive compensation so as to reward their executives for improving shareholder value more so than Chaebol firms. The evidence is consistent with the recent literature on the nature of Chaebols in Korea.

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Table 1 Summary Statistics

| | All Firms | | | Non-Chaebol Firms | | | Chaebol Firms | | |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | S.D. | N | Mean | S.D. | N | Mean | S.D. | N |
| TPAY | 1,454,794,390 | 2,394,421,610 | 550 | 862,578,114 | 825,465,462 | 329 | 2,336,419,520 | 3,462,065,790 | 221 |
| Δln(TPAY) | 0.096 | 0.547 | 550 | 0.097 | 0.558 | 329 | 0.095 | 0.533 | 221 |
| APAY | 102,559,433 | 119,692,844 | 546 | 79,908,172 | 68,505,318 | 327 | 136,381,179 | 163,948,848 | 219 |
| Δln(APAY) | 0.101 | 0.581 | 546 | 0.106 | 0.480 | 327 | 0.094 | 0.706 | 219 |
| ROR | 0.024 | 0.212 | 550 | 0.029 | 0.248 | 329 | 0.017 | 0.143 | 221 |
| ΔROA | -0.003 | 0.066 | 550 | -0.006 | 0.067 | 329 | 0.002 | 0.065 | 221 |
| SALEGROW | 0.158 | 0.371 | 550 | 0.146 | 0.376 | 329 | 0.176 | 0.363 | 221 |
| NEGPROF | 0.102 | 0.303 | 550 | 0.140 | 0.347 | 329 | 0.045 | 0.208 | 221 |

(Sources)

1. Data on TPAY (Total Annual Cash Compensation of All Directors) and APAY (Total Annual Cash Compensation of All Directors Per Director) are from Annual report of each company (can be accessed from Korea Stock Exchange or Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).

(Notes)

1. The data are based on 251 firms that were included in KOSPI200 for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:

TPAY =Total annual cash compensation of all directors in 1995-constant won
APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 2 Regression of Percentage Change in Annual Cash Compensation of All Directors on Performance:
Considering Performance Variables Individually
Dependent variable=Δln(TPAY)

| | (i) | | (i)' | | (ii) | | (ii)' | | (iii) | | (iii)' | | (iv) | | (iv)' | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value |
| Constant | 0.090 | 3.864 | 0.064 | 1.622 | 0.098 | 4.184 | 0.049 | 1.264 | 0.101 | 3.962 | 0.053 | 1.320 | 0.095 | 3.835 | 0.049 | 1.250 |
| ROR | 0.229 | 2.083 | 0.194 | 1.659 | | | | | | | | | | | | |
| ΔROA | | | | | 0.502 | 1.423 | 0.527 | 1.491 | | | | | | | | |
| SALEGROW | | | | | | | | | -0.029 | -0.457 | -0.018 | -0.283 | | | | |
| NEGPROF | | | | | | | | | | | | | 0.015 | 0.194 | 0.009 | 0.121 |
| Year Dummy | | | yes | | | | yes | | | | yes | | | | yes | |
| Obs. | 550 | | 550 | | 550 | | 550 | | 550 | | 550 | | 550 | | 550 | |
| $R^2$ | 0.0079 | | 0.0112 | | 0.0037 | | 0.0103 | | 0.0004 | | 0.0064 | | 0.0001 | | 0.0063 | |

(Sources)
1. Data on TPAY (Total Annual Cash Compensation of All Directors) and APAY (Total Annual Cash Compensation of All Directors Per Director) are from Annual report of each company (can be accessed from Korea Stock Exchange or Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).

(Notes)
1. The data are based on 251 firms that were included in KOSPI200 for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:
TPAY =Total annual cash compensation of all directors in 1995-constant won
APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 3 Regression of Percentage Change in Annual Cash Compensation
of All Directors on Performance: Considering All Performance Variables
Dependent variable=Δln(TPAY)

| | (i) | | (i)' | |
|---|---|---|---|---|
| | β | t-value | β | t-value |
| Constant | 0.098 | 3.629 | 0.069 | 1.617 |
| ROR | 0.232 | 2.102 | 0.195 | 1.654 |
| ΔROA | 0.712 | 1.814 | 0.702 | 1.783 |
| SALEGROW | -0.063 | -0.950 | -0.054 | -0.806 |
| NEGPROF | 0.042 | 0.504 | 0.041 | 0.499 |
| Year Dummy | | | yes | |
| Obs. | 550 | | 550 | |
| $R^2$ | 0.0142 | | 0.0171 | |

(Sources)
1. Data on TPAY (Total Annual Cash Compensation of All Directors)
and APAY (Total Annual Cash Compensation of All Directors Per Director)
are from Annual report of each company (can be accessed from Korea Stock Exchange or
Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).
(Notes)
1. The data are based on 251 firms that were included in KOSPI200
for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:
TPAY =Total annual cash compensation of all directors in 1995-constant won
APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 4 Regression of Percentage Change in Annual Cash Compensation
of All Directors (Per Director) on Performance: Considering Performance Variables Individually
Dependent variable=Δln(APAY)

| | (i) | | (i)' | | (ii) | | (ii)' | | (iii) | | (iii)' | | (iv) | | (iv)' | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value |
| Constant | 0.098 | 3.902 | 0.108 | 2.528 | 0.101 | 4.053 | 0.097 | 2.329 | 0.105 | 3.886 | 0.102 | 2.364 | 0.099 | 3.773 | 0.095 | 2.253 |
| ROR | 0.132 | 1.126 | 0.145 | 1.162 | | | | | | | | | | | | |
| AROA | | | | | 0.022 | 0.058 | 0.028 | 0.075 | | | | | | | | |
| SALEGROW | | | | | | | | | -0.027 | -0.400 | -0.030 | -0.445 | | | | |
| NEGPROF | | | | | | | | | | | | | 0.018 | 0.215 | 0.018 | 0.224 |
| Year Dummy | | | yes | | | | yes | | | | yes | | | | yes | |
| Obs. | 546 | | 546 | | 546 | | 546 | | 546 | | 546 | | 546 | | 546 | |
| $R^2$ | 0.0023 | | 0.0028 | | 0.0000 | | 0.0003 | | 0.0003 | | 0.0007 | | 0.0001 | | 0.0004 | |

(Sources)

1. Data on TPAY (Total Annual Cash Compensation of All Directors) and APAY (Total Annual Cash Compensation of All Directors Per Director) are from Annual report of each company (can be accessed from Korea Stock Exchange or Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).

(Notes)

1. The data are based on 251 firms that were included in KOSPI200 for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:

TPAY =Total annual cash compensation of all directors in 1995-constant won
APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Return
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 5 Regression of Percentage Change in Annual Cash Compensation
of All Directors (Per Director) on Performance: Considering All Performance Variables
Dependent variable=Δln(APAY)

| | (i) | | (i)' | |
|---|---|---|---|---|
| | β | t-value | β | t-value |
| Constant | 0.102 | 3.502 | 0.113 | 2.474 |
| ROR | 0.132 | 1.115 | 0.145 | 1.154 |
| AROA | 0.112 | 0.267 | 0.122 | 0.288 |
| SALEGROW | -0.031 | -0.445 | -0.036 | -0.511 |
| NEGPROF | 0.011 | 0.124 | 0.012 | 0.131 |
| Year Dummy | | | yes | |
| Obs. | 546 | | 546 | |
| $R^2$ | 0.0028 | | 0.0034 | |

Sources:
(Sources)
1. Data on TPAY (Total Annual Cash Compensation of All Directors) and
APAY (Total Annual Cash Compensation of All Directors Per Director)
are from Annual report of each company (can be accessed from Korea Stock Exchange or
Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).
(Notes)
1. The data are based on 251 firms that were included in KOSPI200
for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:

TPAY =Total annual cash compensation of all directors in 1995-constant won
APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 6A Regression of Percentage Change in Annual Cash Compensation
of All Directors on Performance for Non-Chaebol Firms: Considering Performance Variables Individually
Dependent variable=Δln(TPAY)

| | (i) | | (i)' | | (ii) | | (ii)' | | (iii) | | (iii)' | | (iv) | | (iv)' | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value |
| Constant | 0.090 | 2.915 | 0.064 | 1.301 | 0.099 | 3.211 | 0.052 | 1.066 | 0.107 | 3.229 | 0.060 | 1.179 | 0.085 | 2.565 | 0.046 | 0.921 |
| ROR | 0.234 | 1.891 | 0.199 | 1.538 | | | | | | | | | | | | |
| ΔROA | | | | | 0.376 | 0.816 | 0.380 | 0.825 | | | | | | | | |
| SALEGROW | | | | | | | | | -0.067 | -0.819 | -0.047 | -0.575 | | | | |
| NEGPROF | | | | | | | | | | | | | 0.084 | 0.946 | 0.061 | 0.683 |
| Year Dummy | | | yes | | | | yes | | | | yes | | | | yes | |
| Obs. | 329 | | 329 | | 329 | | 329 | | 329 | | 329 | | 329 | | 329 | |
| $R^2$ | 0.0108 | | 0.0199 | | 0.0020 | | 0.0148 | | 0.0020 | | 0.0138 | | 0.0027 | | 0.0142 | |

(Sources)

1. Data on TPAY (Total Annual Cash Compensation of All Directors) and APAY (Total Annual Cash Compensation of All Directors Per Director) are from Annual report of each company (can be accessed from Korea Stock Exchange or Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).
4. We classified all firms into Chaebol and Non-Chaebol firms by going over the KFTC press releases on large business groups.

(Notes)

1. The data are based on 251 firms that were included in KOSPI200 for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:

TPAY =Total annual cash compensation of all directors in 1995-constant won
APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 6B Regression of Percentage Change in Annual Cash Compensation
of All Directors on Performance for Chaebol Firms: Considering Performance Variables Individually
Dependent variable=Δln(TPAY)

| | (i) | | (i)' | | (ii) | | (ii)' | | (iii) | | (iii)' | | (iv) | | (iv)' | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value |
| Constant | 0.091 | 2.535 | 0.059 | 0.832 | 0.094 | 2.621 | 0.042 | 0.642 | 0.089 | 2.237 | 0.041 | 0.616 | 0.107 | 2.933 | 0.066 | 1.010 |
| ROR | 0.205 | 0.820 | 0.122 | 0.414 | | | | | | | | | | | | |
| ΔROA | | | | | 0.709 | 1.282 | 0.741 | 1.334 | | | | | | | | |
| SALEGROW | | | | | | | | | 0.032 | 0.327 | 0.031 | 0.314 | | | | |
| NEGPROF | | | | | | | | | | | | | -0.271 | -1.580 | -0.261 | -1.509 |
| Year Dummy | | | yes | | | | yes | | | | yes | | | | yes | |
| Obs. | 221 | | 221 | | 221 | | 221 | | 221 | | 221 | | 221 | | 221 | |
| $R^2$ | 0.0031 | | 0.0045 | | 0.0075 | | 0.0118 | | 0.0005 | | 0.0042 | | 0.0113 | | 0.0141 | |

(Sources)
1. Data on TPAY (Total Annual Cash Compensation of All Directors) and APAY (Total Annual Cash Compensation of All Directors Per Director) are from Annual report of each company (can be accessed from Korea Stock Exchange or Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).
4. We classified all firms into Chaebol and Non-Chaebol firms by going over the KFTC press releases on large business groups.

(Notes)
1. The data are based on 251 firms that were included in KOSPI200 for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:
TPAY =Total annual cash compensation of all directors in 1995-constant won
APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 7 Regression of Percentage Change in Annual Cash Compensation of All Directors
on Performance for Non-Chaebol Firms and Chaebol Firms: Considering All Performance Variables
Dependent variable=Δln(TPAY)

| | Non-Chaebol Firms | | | | Chaebol Firms | | | |
|---|---|---|---|---|---|---|---|---|
| | (i) | | (i)' | | (i) | | (i)' | |
| | β | t-value | β | t-value | β | t-value | β | t-value |
| Constant | 0.094 | 2.602 | 0.070 | 1.326 | 0.103 | 2.489 | 0.087 | 1.139 |
| ROR | 0.243 | 1.956 | 0.212 | 1.628 | 0.283 | 1.099 | 0.235 | 0.751 |
| ΔROA | 0.881 | 1.683 | 0.796 | 1.507 | 0.499 | 0.839 | 0.525 | 0.869 |
| SALEGROW | -0.105 | -1.215 | -0.088 | -1.003 | -0.006 | -0.060 | -0.011 | -0.105 |
| NEGPROF | 0.122 | 1.262 | 0.104 | 1.064 | -0.277 | -1.521 | -0.265 | -1.401 |
| Year Dummy | | | yes | | | | yes | |
| Obs. | 329 | | 329 | | 221 | | 221 | |
| $R^2$ | 0.0232 | | 0.0289 | | 0.0208 | | 0.0214 | |

(Sources)
1. Data on TPAY (Total Annual Cash Compensation of All Directors) and
APAY (Total Annual Cash Compensation of All Directors Per Director)
are from Annual report of each company (can be accessed from Korea Stock Exchange or
Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).
4. We classified all firms into Chaebol and Non-Chaebol firms
by going over the KFTC press releases on large business groups.
(Notes)
1. The data are based on 251 firms that were included in KOSPI200
for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:
TPAY =Total annual cash compensation of all directors in 1995-constant won
APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 8A Regression of Percentage Change in Annual Cash Compensation
of All Directors (Per Director) on Performance for Non-Chaebol Firms: Considering Performance Variables Individually
Dependent variable=Δln(APAY)

| | (i) | | (i)' | | (ii) | | (ii)' | | (iii) | | (iii)' | | (iv) | | (iv)' | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value |
| Constant | 0.099 | 3.728 | 0.082 | 1.926 | 0.107 | 4.025 | 0.070 | 1.663 | 0.102 | 3.569 | 0.063 | 1.442 | 0.092 | 3.200 | 0.062 | 1.434 |
| ROR | 0.216 | 2.025 | 0.194 | 1.732 | | | | | | | | | | | | |
| ΔROA | | | | | 0.282 | 0.712 | 0.293 | 0.736 | | | | | | | | |
| SALEGROW | | | | | | | | | 0.025 | 0.355 | 0.039 | 0.549 | | | | |
| NEGPROF | | | | | | | | | | | | | 0.100 | 1.310 | 0.085 | 1.110 |
| Year Dummy | | | yes | | | | yes | | | | yes | | | | yes | |
| Obs. | 327 | | 327 | | 327 | | 327 | | 327 | | 327 | | 327 | | 327 | |
| $R^2$ | 0.0125 | | 0.0168 | | 0.0016 | | 0.0093 | | 0.0004 | | 0.0086 | | 0.0053 | | 0.0115 | |

(Sources)

1. Data on TPAY (Total Annual Cash Compensation of All Directors) and APAY (Total Annual Cash Compensation of All Directors Per Director) are from Annual report of each company (can be accessed from Korea Stock Exchange or Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
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3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).
4. We classified all firms into Chaebol and Non-Chaebol firms by going over the KFTC press releases on large business groups.

(Notes)

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ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 8B Regression of Percentage Change in Annual Cash Compensation
of All Directors (Per Director) on Performance for Chaebol Firms: Considering Performance Variables Individually
Dependent variable=Δln(APAY)

| | (i) | | (i)' | | (ii) | | (ii)' | | (iii) | | (iii)' | | (iv) | | (iv)' | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value | β | t-value |
| Constant | 0.098 | 2.040 | 0.134 | 1.412 | 0.094 | 1.972 | 0.153 | 1.753 | 0.113 | 2.127 | 0.175 | 1.936 | 0.109 | 2.241 | 0.178 | 2.015 |
| ROR | -0.248 | -0.744 | -0.174 | -0.448 | | | | | | | | | | | | |
| ΔROA | | | | | -0.382 | -0.517 | -0.435 | -0.588 | | | | | | | | |
| SALEGROW | | | | | | | | | -0.108 | -0.824 | -0.134 | -1.011 | | | | |
| NEGPROF | | | | | | | | | | | | | -0.336 | -1.476 | -0.368 | -1.609 |
| Year Dummy | | | yes | | | | yes | | | | yes | | | | yes | |
| Obs. | 219 | | 219 | | 219 | | 219 | | 219 | | 219 | | 219 | | 219 | |
| $R^2$ | 0.0025 | | 0.0108 | | 0.0012 | | 0.0114 | | 0.0031 | | 0.0145 | | 0.0099 | | 0.0216 | |

(Sources)
1. Data on TPAY (Total Annual Cash Compensation of All Directors) and APAY (Total Annual Cash Compensation of All Directors Per Director) are from Annual report of each company (can be accessed from Korea Stock Exchange or Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).
4. We classified all firms into Chaebol and Non-Chaebol firms by going over the KFTC press releases on large business groups.

(Notes)
1. The data are based on 251 firms that were included in KOSPI200 for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:
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APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise

Table 9 Regression of Percentage Change in Annual Cash Compensation of All Directors (Per Director) on Performance for Non-Chaebol Firms and Chaebol Firms: Considering All Performance Variables
Dependent variable=Δln(APAY)

| | Non-Chaebol Firms | | | | Chaebol Firms | | | |
|---|---|---|---|---|---|---|---|---|
| | (i) | | (i)' | | (i) | | (i)' | |
| | β | t-value | β | t-value | β | t-value | β | t-value |
| Constant | 0.083 | 2.662 | 0.067 | 1.457 | 0.136 | 2.462 | 0.217 | 2.121 |
| ROR | 0.212 | 1.982 | 0.192 | 1.706 | -0.162 | -0.473 | 0.020 | 0.048 |
| ΔROA | 0.618 | 1.370 | 0.568 | 1.247 | -0.460 | -0.580 | -0.555 | -0.693 |
| SALEGROW | 0.006 | 0.081 | 0.017 | 0.221 | -0.123 | -0.887 | -0.145 | -1.037 |
| NEGPROF | 0.139 | 1.667 | 0.128 | 1.519 | -0.379 | -1.570 | -0.453 | -1.814 |
| Year Dummy | | | yes | | | | yes | |
| Obs. | 327 | | 327 | | 219 | | 219 | |
| $R^2$ | 0.0231 | | 0.0260 | | 0.0179 | | 0.0313 | |

(Sources)
1. Data on TPAY (Total Annual Cash Compensation of All Directors) and
APAY (Total Annual Cash Compensation of All Directors Per Director)
are from Annual report of each company (can be accessed from Korea Stock Exchange or
Financial Supervisory Service websites: http://kind.kse.or.kr/ and http://dart.fss.or.kr/)
2. Data on Stock Returns are from Korea Securities Research Institute (KSRI).
3. Data on Sales growth and ROA are from Korea Listed Companies Assocation (KLCA).
4. We classified all firms into Chaebol and Non-Chaebol firms
by going over the KFTC press releases on large business groups.
(Notes)
1. The data are based on 251 firms that were included in KOSPI200
for at least two consecutive years over the sample period of 1998 to 2001.
2. Variable definitions:
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APAY =Total annual cash compensation of all directors per director in 1995-constant won
ROR =Stock Returns
ROA =Return On Asset (Profit/Asset)
SALEGROW =Rate of Growth of Sales
NEGPROF =1 if profit is negative, 0 otherwise