Executive Compensation and Agency Effects

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ABSTRACT

The separation of ownership from control in large corporations can cause agency problems. This study analyzes the effects of the dispersion of corporate ownership on the compensation of the top executives of Fortune 500 companies. We estimate the effects across the executive hierarchy and for different components of the compensation package in contrast to more limited previous studies. The results indicate that there is a significant agency effect on executive pay, though the magnitude is small relative to company size. The effects are greatest for the most liquid form of remuneration, salaries, and are nonuniform across executive categories, with the strongest effect found for the Chairman of the Board.

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Agency problems caused by the separation of ownership and control in large corporations have been the subject of extensive concern since first popularized by Berle and Means (1932). Further research efforts have been stimulated by the more recent formulation of the agency problem by Jensen and Meckling (1976). The problem may manifest itself in the compensation of top executives of corporations where management and ownership are separate. The public is fascinated by the multi-million dollar remuneration figures featured in the press, while academics steeped in neoclassical models of factor price determination wonder whether such compensation can be reconciled with productivity differentials, or else whether management is taking advantage of the lack of ownership control. Two bodies of literature have developed which are related to the latter possibility. The first investigates the relationship between executive compensation and corporate performance, and the second relates corporate performance to the degree of control that owners have over managers of the firm. This study brings together these two lines of research and tests directly the agency issue of the effect of the dispersion of corporate ownership on the compensation of the executives of Fortune 500 corporations.

Previous studies in this vein have related Chief Executive Officer (CEO) compensation to ownership dispersion, implicitly assuming that the CEO is a reasonable proxy for all top executives. We show, rather, that agency effects are not uniform across executive groups, and thus it may be misleading to let the CEO represent the whole executive group. By directly addressing the agency question through an analysis of all top executives, we find that a less concentrated corporate ownership leads to significantly higher executive compensation, with differential effects on different positions in the executive hierarchy and for different components of the compensation package. However, the magnitude of the diversion of resources to the executive group in a typical corporation in our sample is not large relative to company size. ¶

first section of the paper reviews the previous literature, develops the ideas tested, and presents the formal model. The second section describes the data utilized in the study, especially the ownership dispersion data for 1980 and the executive compensation data. The third section tests for the agency effects and calculates the importance of the effects. The final section presents the conclusions of the analysis.

I. The Agency Problem and Executive Compensation

The examination of the modern corporation by Berle and Means (1932) raised various issues about the operation of corporations, including the implications of the separation of ownership and management. The general agency problem arises when the manager (the agent) does not act in the best interest of owners (the principals) of the company. Opportunistic behavior by managers is hypothesized to increase with a decline in corporate control, which is measured in this study by the degree of dispersion in stock ownership. A greater dispersion of ownership leads to greater costs to owners of collecting and disseminating information regarding the efficiency of managerial decisions, and also to smaller returns to each stockholder for policing managerial inefficiencies (see DeAlessi, 1973). Dispersion of ownership not only reduces the incentive of shareholders to monitor managerial actions, but also reduces the ability of shareholders to remove unsatisfactory managers, thereby creating incentives for managers to exploit their relatively protected positions.¹

It is assumed that managers are utility maximizers, so we might expect that they would also try to extract gains from lack of ownership control in less easily measured items such as the size and quality of the executive group and support staff, the character of the work

¹An alternative view is offered by Fama (1980). He conjectures that if labor markets operate efficiently market forces can resolve the incentive problem. Specifically, positions with greater scope for discretionary behavior will provide less compensation as competition for these positions reduce the supply price.

environment, and insulation from undue pressure and unpleasant environmental circumstances.² Consequently, it is more difficult to find a measurable effect on compensation, and finding one provides strong evidence of an agency effect.

In this paper we examine the measurable aspects of executive remuneration which are reported according to the requirements of the Securities and Exchange Commission (SEC). Most firms divide executive compensation into three categories: salaries, personal benefits, and contingent remuneration.³ Salaries include directors fees and bonuses, personal benefits include insurance, securities, auto leasing, and tax and financial advice, while contingent remuneration items such as stock options depend on company performance. We would expect salaries and contingent payments to be the most desirable categories through which to extract agency gains since they represent direct monetary compensation for the executive⁴. Since reporting of executive compensation is not totally consistent across companies, total remuneration (INCOME) may prove to be the most dependable measure of compensation. Nevertheless, the empirical analysis examines total remuneration and the three separate remuneration categories.

The agency problem may affect the remuneration of different types of executives in different ways. Though duties and titles vary by company, there are generally three top positions in large corporations: Chairman of the Board (CB), Chief Executive Officer (CEO), and President (PRES). The Chairman of the Board runs the Board meetings, the CEO has overall responsibility for the company, and the President usually is the chief operating officer.

²Unfortunately we do not have systematic data on many of these factors, except for the size of the entire executive group. In regressions of the number of executives in the firm on ownership dispersion (results available on request), we found that in more dispersely held companies the executive group was larger (relative to company size), although the effect was statistically insignificant.

³In our empirical analysis, categories were combined when firms subdivided any of these main classifications.

⁴Although contingent remuneration contains the risk of being tied to company performance, it may in turn be adversely influenced by opportunistic managerial behavior.

Evaluation of agency and executive compensation is complicated since frequently the same person holds multiple offices, in particular the Chairman of the Board and the CEO. In a typical company, the Compensation Committee, which is usually comprised of mostly outside directors, recommends to the full board the compensation of the CEO, taking into account relative compensation for CEOs of other companies. However, a powerful CEO may be directly responsible for membership on the Board and may, in effect, control the Board. Thus, in the extreme case he could be setting his own compensation. This would be expected to be more prevalent in companies where ownership was more dispersed and the agency problem was more important. The Chairman and other members of the Board have their compensation set by the Board. Lack of ownership concentration might thus also allow for greater compensation for these individuals.

It is also important to recognize that the CEO recommends to the Board the compensation package for other top executives, although there is some evidence that there are generally accepted ratios between CEO compensation and compensation for other top executive positions.⁵ In our sample, 82% of the CEOs were also Chairmen of the Board. We would expect the agency relationship to be stronger in this case and in other cases of the same individual holding multiple top positions. Finding a differential effect of the agency problem on different level executives would clearly question the validity of the practice of previous researchers of using CEO remuneration as a proxy for executive remuneration.

When testing the effect of the degree of corporate control on executive remuneration it is necessary to control for other factors that may affect the level of executive compensation. In one of the earliest studies, Patton (1952) found, using simple correlation coefficients, that executive compensation was positively correlated with both profits and firm growth. It is noteworthy that while Patton examined the distribution of pay among different types of

⁵Henderson (1982), p. 461.

executives, and also considered various measures of compensation, most succeeding studies have utilized only CEOs (ostensibly because of the difficulty in compiling more complete data sets). Roberts (1956) found a stronger relationship between sales and compensation than between profits and compensation and this was supported by McGuire, Chiu and Elbing (1982), but contradicted by Jensen and Murphy (1990). Ciscel and Carroll (1980) corrected for econometric problems found in previous work, specifically dealing with the multicollinearity between sales and profits by using an instrumental variable for profits. We use profit rates instead of profits (to avoid collinearity problems with company size measures) and have included sales growth as an explanatory variable. Other factors introduced as explanatory variables have been regulatory effects in transportation and utilities (Carroll and Ciscel, 1982), market concentration and barriers to entry (Auerbach and Siegfried, 1974), the gender of executives and capital investment in workers (Bartlett and Miller, 1986), sales growth (Murphy, 1985; Coughlan and Schmidt, 1985), stock performance instead of accounting performance (Masson, 1971; Murphy, 1985; Deckop, 1987; Coughlan and Schmidt, 1985; Gibbons and Murphy, 1989), and industry and stock market performance (Gibbons and Murphy, 1989). Gomez-Mejia, Tosin and Hihkin (1989) divide their small sample of firms into manager-controlled and owner-controlled samples to show that CEO compensation is affected more by performance than scale in owner-controlled firms as compared to manager-controlled firms.

The second line of research relates corporate performance (and valuation) to the dispersion of ownership. Demsetz and Lehn (1985) considered ownership concentration as a substitute for alternative measures of controlling management, but using a linear relationship found no correlation between profit rates and ownership. Morck, Shleifer and Vishny (1988) found a significant nonmonotonic relationship between ownership concentration and profit rates, and also between ownership concentration and Tobin's Q - a measure of market valuation. In particular they found that Tobin's Q rises, then falls, and then rises again as ownership

concentration increases. Since the evidence is conflicting regarding the effect of agency problems on firm performance, further analysis of the determinants of ownership concentration and changes in ownership concentration, such as that done by Simon (1989), can potentially be useful.⁶

Two studies have attempted to directly test the agency problem with respect to executive compensation. Both, however, only use CEO compensation, excluding all other executives because of data availability, and additionally aggregate compensation as a single, composite measure.⁷ Santerre and Neun (1986) and Dyl (1988) both found a negative relationship between ownership concentration and CEO compensation, which they claim supports the agency hypothesis and rejects the hypothesis formulated by Fama (1980) that the competitive labor market will resolve the agency problem. Dyl explicitly recognizes that he is assuming that CEO compensation is serving as a proxy for all executive compensation, i.e. that the effects of agency will be uniform throughout the executive group, while Santerre and Neun do not address the issue. We show in our empirical work, though, that the CEOs compensation is not an adequate proxy for executive compensation, namely that agency effects significantly differ across different executive positions.⁸

⁶To the extent that higher executive pay adversely impacts on profitability, simultaneity problems may arise. Yet, due to the small dollar effect of agency on executive pay (see Table 5), feedback effects to profits may not cause substantial estimation problems.

⁷Santerre and Neun (1989) replicates a study by Stigler and Friedland (1983) on the relationship between stockholder control and executive compensation for a sample of 92 firms for 1937-38. After adding profit rates as an additional independent variable, they find a negative relationship between the average salary of the top 3 executives and the percent of the stock held by the top 20 shareholders in contrast to the insignificant relationship found by Stigler and Friedland.

⁸Santerre and Neun only use 68 firms (excluding all owner-managed firms and those without market power (under the belief that the former will not exhibit agency effects and the latter will be sufficiently constrained by the market so as to eliminate opportunistic managerial behavior). While Dyl uses a larger sample of 271 firms, this study is based on a much larger group of firms (451), and explicitly analyses the differences in agency effects in owner-managed and manager-controlled firms. Both previous studies use Forbes Magazine CEO remuneration data and the Corporate Data Exchange Stock Ownership Directory: Fortune 500 data for ownership dispersion. Santerre and Neun employ assets, profit rates, and a Herfindahl index of stock dispersion as independent

The basic model used in this paper to test agency effects on executive compensation is formulated as follows (see appendix Table 1A for exact variable definitions and data sources):

$$E = f(\text{TOP5}, \text{CL}, \text{S}, \text{P}, \text{G}, \text{Y}, \text{D}) \quad (1)$$

where:

- E = various measures of executive compensation,
- TOP5 = stock ownership dispersion (percentage of stock held by the top five stockholders),
- CL = dummy variable for owner-managed firms (one of the top five managers is one of the top five stockholders),
- S = size (employment),
- P = rate of return to investors,
- G = growth of company size (sales),
- Y = three dummy variables for type of ownership (corporate, family, or financial institution),
- D = dummy variables for executive positions.

Natural logs are taken for all variables except for dummy variables and variables with negative values such as profit rates.⁹ Our central hypothesis predicts a negative coefficient for the ownership dispersion variable (LTOP5) since more concentrated ownership would act to reduce the extent of the agency problem as exhibited by higher executive compensation. We expect a positive coefficient for both the size and profitability variables, since these variables test the traditional executive compensation hypotheses based on rewards for size and

variables. Dyl employs ownership concentration, assets, return on equity, and industry dummies as independent variables. He also tested several demographic variables relating to CEOs, but none significantly added explanatory power to his model. Note that similar results for demographic factors are found in Deckop (1987).

⁹The results reported in the following tables were largely robust to alternative specifications, yet the best fit was found for a logarithmic specification (which is also desirable in this context due to heteroscedasticity problems; see Dyl, 1988).

performance. More rapid growth of the firm should yield greater compensation for executives, and thus result in a positive coefficient, since growth is related to both performance and the size hypothesis. The various ownership dummies and multiple position dummies have prior expected relationships with executive compensation as will be explained in the discussion of the empirical results. In addition we have other hypotheses related to a more detailed analysis of different types of executives and different types of compensation which will be explained subsequently.

II. Data Description

In order to examine the effects of the degree of corporate control on executive compensation we require data on the distribution of stock ownership for a wide range of companies. Corporate Data Exchange, Inc. (CDE) has collected and published a listing of all publicly identifiable shareholders with greater than 0.2% of the voting shares in various groups of companies including the Fortune 500, transportation, agribusiness, banking and finance, and energy companies. CDE also calculates the shares of the top 5, 10, 15, and 20 shareholders of total stock outstanding. CDE collected Fortune 500 data only for one time period, December 1980. These data have been the source of corporate control information for many of the studies of stock ownership dispersion including Santerre and Neun (1986) and Dyl (1988).

Since we are confined to 1980 ownership control data, we have collected executive pay data for 1980 from the 1981 corporate proxy statements filed with the SEC by Fortune 500 companies. Since the CDE data included 456 companies, and proxy statements were unavailable for 5 companies, the maximum number of companies with sufficient data is 451. The proxy statements list earnings separately for the top five executives, and for the entire executive group as a whole (plus the number in the group). Titles of the top group are identified, and we have isolated for comparisons the CEO, the Chairman of the Board, the President, and a residual category of the other executives in the top five group (i.e. vice-presidents, and so forth), even

though the functions of these positions may vary somewhat across companies. Company statistics were obtained from Fortune for 1978-80.

Santerre and Neun (1986) and Dyl (1988) restricted themselves to the CEO compensation data listed in Forbes. We have also used these data in our preliminary analysis and have obtained results similar to those obtained by Santerre and Neun and by Dyl. In particular, we obtained a negative and significant coefficient for the concentration of ownership variable as did the previous studies. We also included executive characteristics such as age, years with the firm, and years as CEO, in the model, but none proved to be significantly correlated with executive pay. Consequently, in the results presented below using the SEC executive pay data, it is not essential to include executive characteristics, so that their exclusion should not affect significantly estimation of the effects of agency.¹⁰

III. Empirical Results

Tables 1-4 report least squares estimates of the effect of stock ownership dispersion on the different components of executive remuneration for different executive categories both for the full sample, and separately for owner-managed and not owner-managed firms.¹¹ Total income is the sum of the three components of remuneration: salary, benefits, and contingent pay. Salary contains basic wages and includes bonuses and directors fees. Benefits include the value of fringe benefits such as insurance, company cars, and advisory services. Contingent pay consists of items solely dependent on company performance such as stock options. As noted earlier, definitions are not entirely consistent across companies. Because of space constraints we only report the coefficient estimates and standard errors of the two independent variables

¹⁰Since personal data on the executives is only available for the CEOs, we have elected not to include these factors so as to allow us to make more uniform comparisons across the various types of executives.

¹¹ Appendix table A1 defines the variables used in the analysis.

most important for the central thesis of the paper. The results for other coefficients are summarized below and the complete estimates are available from the authors on request. Table 5 reports the estimated dollar magnitudes of the agency effects based on the estimates in Tables 1-4.

The effects of agency on total executive remuneration can be found in the coefficient of LTOP5 in each equation (1) for the different executive groups in Table 1. The greater is the percentage of stock held by the five largest stockholders, the lower is total executive pay (INCOME) across the executive hierarchy.¹² The results are statistically significant at the 1 % level for the Chairman of the Board, at the 5 % level for the President and other executives in the top five pay groups, and at the 10 % level for the CEO. Though the coefficient has the expected negative sign for the average of the remaining executives,¹³ it is not statistically significant. The strongest results are seen for SALARY, Table 2, where the agency effect is statistically significant for all categories of executives at the 5 % level. The sign of the coefficient is negative for all categories of executives in Table 3 for benefits, but is only statistically significant for the Chairman of the Board. The weakest results are found for contingency pay in Table 4, where while the signs are negative for all five executive groups, none is statistically significant. As noted earlier, these last two measures may be less desirable ways, in the eyes of executives, to get their "discretionary pay" since although they may have tax advantages, they are less liquid and riskier. In addition, the classification of remuneration into these categories varies across companies.

¹²This result is robust for alternative measures of ownership concentration such as percentage held by the ten largest stockholders, although the magnitude of the effects differ. The same is true for Tables 2-4.

¹³The OTHER group is calculated by subtracting the sum of the pay for the top five executives from the pay reported in the corporate proxies for the entire executive group. This value is then divided by the number of executives in the company, minus five, to get the average pay for an executive who is not one of the top five paid executives in the company.

In order to examine the effects of owner-managed status on executive pay, the variable CL (a dummy variable indicating whether any of the top five managers is also one of the top five stockholders) is included in panel (A) in Tables 1-4. As expected, the effect of owner control is generally to reduce executive pay; for total remuneration we find negative effects for all executive groups and significantly negative coefficients for four out of five of the groups, although most coefficients are statistically insignificant for the other remuneration categories. In order to investigate the effect of owner control on the agency effect (as opposed to the level of pay per se - shown by the coefficients on CL), we divide the sample into owner-controlled and not owner-controlled sub-samples for all categories of executives and remuneration. The results of the estimation are reported in panels (B) and (C) of Tables 1-4. As expected, the agency effect is most clearly observed in the firms that are not owner-controlled (significant effects for not owner-controlled companies, are found in three categories for total income and in all categories for salary). Yet, contrary to the predictions of Santerre and Neun, we find a statistically significant agency effect in owner-managed firm for the Chairman of the Board (for total income and salary).

In appendix Tables A2-A5 we employ a different measure of owner control, EL, which indicates whether the manager in question is one of the five top stockholders. A firm is now considered owner-controlled, say for the CEO, only if the CEO is also a major stockholder, while previously the firm would be classified as owner controlled if any top five executive was a major stockholder. We find similar agency effects with this model specification. We also find widely different effects across the different executive groups. Apparently the executive is taking advantage of the influence resulting from his control of a large block of stock combined with his office, to increase his compensation when stockholding is relatively disperse.¹⁴

¹⁴Since his pay is only a small part of total company costs, his behavior is unlikely to adversely impact on the value of his stock.

Most of the coefficients of the other variables in the regression estimates had the expected signs and were statistically significant in many cases (full results available on request). In general we find that executives tend to receive higher pay when rates of return are higher, when companies are larger (as measured in several alternative ways), and are growing faster. Family and institutional holdings of large blocks of stock sometimes have significant effects on different types of executives and different elements of the compensation package. Though there appears to be little effect on personal benefits or contingency pay, large holdings by a family concern seems to exert a generally positive influence on executive pay, possibly reflecting a founding father effect that is not directly captured in any of the other explanatory variables.¹⁵ Dummy variables for individuals holding multiple executive positions usually had positive coefficients and frequently were statistically significant indicating that multiple positions lead to higher financial remuneration.

Finally it has been asserted that greater risk will require greater rewards to executives as a compensatory differential (both for the greater risk attached to their contingent pay per se, and for any inherent adverse aspect of the work environment in a riskier setting). To the extent that riskier companies are more dispersely held (since investors may not wish to hold large blocks of riskier stocks), then it is possible that the negative coefficient on LTOP5 might simply be picking up a compensating differential paid to executives working in riskier companies. In order to test for this possibility, the model was augmented with two alternative additional variables representing company risk. When the coefficient of variation of sales was included as the risk measure it usually had the expected positive sign, and in most equations was

¹⁵Note in contrast that Deckop (1987) found that CEOs who were founders of the firm earned less than internally-promoted CEOs, who in turn earned less than those recruited from outside the firm.

statistically significant,¹⁶ yet the other results changed little from before, and in fact, were generally more significant. When the historical β of the company was used instead as the risk measure, the coefficient was mostly positive but not statistically significant.¹⁷ Again the coefficients of other variables did not change significantly (all results available on request).¹⁸

The differential impact of agency on different levels of the executive hierarchy can be observed in the different coefficients on LTOP5 for the different groups of executives. We first tested whether these differences are statistically significant by merging the sample across executive positions and then including interaction terms between LTOP5 and position dummies in our model. The individual significance of the interactions of position and LTOP5 are tested using a t test, and the joint significance of the interactions using an F test. We obtained five sets of results from treating each of the five executive categories as the reference group. Most of the interaction terms are individually statistically significant at the 5% level for total income and salary, while most are not statistically significant for benefits and contingency. The joint interactions are always significant for total income and salary, and usually not significant for the remaining two remuneration measures (Detailed results can be obtained from the authors). We can conclude that the coefficients of LTOP5 are significantly different across executive groups for the two measures of remuneration, total income and salary, where we most consistently find an agency effect.

¹⁶The coefficient was negative and statistically significant only for the other executives in the case of contingencies. It was negative for three executive types under contingencies. This may indicate that executives desire less contingency pay in riskier situations.

¹⁷Three categories of executives had significant positive coefficients with benefits. Once again generally negative coefficients (in two cases statistically significant) appeared with contingencies.

¹⁸Similar considerations might apply to the widely observed positive relationship between company size and executive pay since stock dispersion is greater in larger companies - a regression of LTOP5 on $\ln(\text{size})$, with the same vector of controls used in Tables 1-4, yielded a negative coefficient which was significant at 1% (full results available on request). Yet, since the size effect on pay remained significant even when LTOP5 was included indicates that size is not simply reflecting an agency effect on pay.

Looking at the comparative elasticities for INCOME, we see that the agency effect for the Chairman of the Board is nearly twice that for the CEO and the President, and approximately three times the size of the effect for the other top five executives and the other executives. A similar pattern of results is observed for SALARY. For BENEFITS the Chairman of the Board exhibits by far the largest effect, while for contingency payments (CONTING) the Chairman and CEO experience similar agency effects. These differential parameter estimates support our claim that the use of CEO data to proxy the overall effects of agency on executive pay is not an acceptable practice.

Table 5 reports our calculated estimates of the agency costs stemming from lack of corporate control. Since the coefficients of the ownership dispersion variable are elasticities, we can easily calculate the effects of changes in ownership dispersion. The entries for each sample in the table are the dollar agency costs of a 10% decrease (Part A) or a 50% decrease (Part B) in ownership concentration for the different types of executives and for each remuneration category (using the elasticity estimates in Tables 1-4); blanks indicate no agency costs (when the coefficients are positive). We see that the agency costs are generally largest for the salary component of remuneration, as expected. While our estimates in Tables 1-4 indicate that agency effects are present, the total agency cost does not appear to be a large number when there is a relatively small change in ownership concentration such as 10%.¹⁹ For the Chairman of the Board, the executive with the greatest sensitivity to ownership dispersion changes, a 10% decrease in ownership concentration would only lead to an increase in compensation of \$10,689, which is small relative to any measure of company size. A massive change in ownership concentration, such as a 50% decrease, would lead to a \$53,445 increase in the CBs compensation, which would clearly affect these executives significantly. However, this is still only approximately a 9.0% increase in executive compensation and an insignificant figure when

¹⁹This, of course, is as expected given the relatively small values of the estimated elasticities.

compared to average size company aggregates.²⁰ The changes are substantially smaller for other top executives.

IV. Conclusions

The costs to society of opportunistic behavior by managers, due to the separation of ownership from control in the modern corporation, are potentially of great concern. These costs include both the direct diversion of resources from owner to managers, with possible repercussions in the capital and labor markets, and the effects on productivity, with obvious implications for international competitiveness and general efficiency in the utilization of scarce resources. This study focuses on one important dimension along which agency effects might operate, namely executive remuneration.

A priori one might not expect to find agency effects manifested in executive pay since this form of opportunistic behavior is highly visible. Rather, one might expect that managers increase their utility by extracting resources from the owners of the corporation in a less visible fashion, say through expense accounts, congenial employees, and so forth. Nevertheless, to the extent that these forms of remuneration are imperfectly substitutable with direct pecuniary forms of compensation, it is plausible that executives may attempt to exploit the lack of owner control by taking some of their "discretionary compensation" in the more liquid form of pecuniary pay, even though the magnitude of this effect may be small.

Our results indicate that there is a significant agency effect on executive pay, though the total magnitude of the effect appears to be small, relative to company assets. We also find that the effects are greatest for the most liquid form of pecuniary remuneration, salaries, and that the

²⁰Dyl (1988) has calculated considerably larger agency costs, yet his figures are based on a comparison of completely "atomistic" stockholding to the mean level of concentration - a much larger change in concentration than that considered here. Our elasticities are also much smaller than those calculated by Dyl from his semilog earnings specification (earnings are entered in a linear fashion).

effects are nonuniform across the executive hierarchy with the strongest effect found for the Chairman of the Board. This latter result strongly calls into question the practice by previous researchers of using CEO data to proxy the effects of agency on the entire executive group. We also find that agency effects differ significantly between owner-managed and not owner-managed firms, and that these differential effects vary by whether owner-controlled is defined by the executive in question or by any executive holding a major block of stock.

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TABLE 1: Stock Dispersion Effects on Executive Remuneration
Dependent Variable = $\ln$ (Total Income)

(A) Full Sample

	<u>CEO</u> (n=237) (\$589,607)	<u>CB</u> (n=284) (\$591,139)	<u>PRES</u> (n=296) (\$465,026)	<u>OEXEC</u> (n=1,127) (\$287,960)	<u>OTHER</u> (n=338) (\$112,982)
LTOP5	-0.099 ^c (0.050)	-0.179 ^a (0.052)	-0.110 ^b (0.050)	-0.058 ^b (0.025)	-0.043 (0.052)
CL	-0.125 ^c (0.064)	-0.113 ^c (0.063)	-0.038 (0.062)	-0.051 ^c (0.030)	-0.143 ^b (0.062)
R ²	0.427	0.353	0.320	0.331	0.327

(B) Owner Controlled Firm (CL=1)

	<u>CEO</u> (n=61) (\$498,811)	<u>CB</u> (n=88) (\$483,622)	<u>PRES</u> (n=90) (\$446,409)	<u>OEXEC</u> (n=335) (\$247,766)	<u>OTHER</u> (n=98) (\$77,745)
LTOP5	-0.130 (0.109)	-0.204 ^c (0.108)	-0.079 (0.096)	-0.042 (0.042)	-0.071 (0.067)
R ²	0.392	0.227	0.327	0.321	0.395

(C) Not Owner Controlled Firm (CL=0)

	<u>CEO</u> (n=176) (\$620,377)	<u>CB</u> (n=206) (\$635,123)	<u>PRES</u> (n=216) (\$472,790)	<u>OEXEC</u> (n=792) (\$304,462)	<u>OTHER</u> (n=249) (\$127,370)
LTOP5	-0.068 (0.057)	-0.153 ^b (0.060)	-0.127 ^b (0.061)	-0.073 ^b (0.032)	-0.036 (0.070)
R ²	0.435	0.371	0.338	0.310	0.279

NOTE: Parameter estimates are reported with standard errors in parentheses. Superscripts a,b and c denote 1%, 5% and 10% significance levels, respectively. Regressions are reported separately, reading left to right, for the Chief Executive Officer (CEO), the Chairman of the Board (CB), the President (PRES), other executives in the top five pay group (OEXEC), and the average for the remaining executives (OTHER). Each regression additionally includes all controls listed in the appendix table (full results are available on request); each column includes the relevant joint position dummies (e.g. CEO includes CEOCB, CEOPRES and CEOOTH).

n = number of observations

\$ value = average compensation

LTOP5 = log of the percentage of stock held by the top five stockholders

CL = dummy variable (=1) if any of the top five managers is also one of the top five stockholders

TABLE 2: Stock Dispersion Effects on Executive Remuneration
Dependent Variable = ln (Salary)

(A) Full Sample

	<u>CEO</u> (n=299) (\$444,254)	<u>CB</u> (n=382) (\$439,220)	<u>PRES</u> (n=372) (\$360,629)	<u>OEXEC</u> (n=1,419) (\$227,887)	<u>OTHER</u> (n=424) (\$92,234)
LTOP5	-0.088 ^b (0.039)	-0.156 ^a (0.038)	-0.083 ^b (0.037)	-0.062 ^a (0.019)	-0.084 ^b (0.041)
CL	-0.069 (0.048)	-0.063 (0.045)	0.025 (0.045)	0.011 (0.023)	-0.046 (0.049)
R ²	0.379	0.390	0.329	0.359	0.345

(B) Owner Controlled Firm (CL=1)

	<u>CEO</u> (n=78) (\$397,948)	<u>CB</u> (n=111) (\$376,780)	<u>PRES</u> (n=112) (\$356,494)	<u>OEXEC</u> (n=419) (\$206,215)	<u>OTHER</u> (n=126) (\$69,294)
LTOP5	-0.085 (0.086)	-0.152 ^c (0.086)	-0.064 (0.074)	-0.046 (0.034)	-0.077 (0.061)
R ²	0.345	0.256	0.383	0.350	0.378

(C) Not Owner Controlled Firm (CL=0)

	<u>CEO</u> (n=221) (\$460,597)	<u>CB</u> (n=271) (\$464,795)	<u>PRES</u> (n=260) (\$362,410)	<u>OEXEC</u> (n=1000) (\$236,968)	<u>OTHER</u> (n=298) (\$101,933)
LTOP5	-0.067 ^c (0.043)	-0.149 ^a (0.040)	-0.104 ^b (0.042)	-0.078 ^a (0.024)	-0.092 ^c (0.054)
R ²	0.421	0.440	0.339	0.354	0.316

See NOTE to TABLE 1.

TABLE 3: Stock Dispersion Effects on Executive Remuneration
Dependent Variable = ln (Benefits)

(A) Full Sample

	<u>CEO</u> (n=250) (\$50,981)	<u>CB</u> (n=313) (\$57,748)	<u>PRES</u> (n=303) (\$45,216)	<u>OEXEC</u> (n=1,115) (\$24,376)	<u>OTHER</u> (n=368) (\$7,322)
LTOP5	-0.010 (0.201)	-0.365 ^c (0.191)	-0.018 (0.189)	-0.036 (0.091)	-0.111 (0.148)
CL	0.187 (0.244)	0.111 (0.234)	-0.259 (0.236)	-0.081 (0.108)	-0.279 (0.180)
R ²	0.108	0.093	0.086	0.058	0.128

(B) Owner Controlled Firm (CL=1)

	<u>CEO</u> (n=62) (\$35,600)	<u>CB</u> (n=87) (\$43,314)	<u>PRES</u> (n=77) (\$33,174)	<u>OEXEC</u> (n=331) (\$17,022)	<u>OTHER</u> (n=106) (\$3,917)
LTOP5	-0.054 (0.314)	-0.281 (0.324)	0.421 (0.336)	0.035 (0.147)	-0.059 (0.255)
R ²	0.227	0.141	0.144	0.102	0.124

(C) Not Owner Controlled Firm (CL=0)

	<u>CEO</u> (n=188) (\$56,053)	<u>CB</u> (n=216) (\$63,305)	<u>PRES</u> (n=216) (\$50,066)	<u>OEXEC</u> (n=824) (\$27,330)	<u>OTHER</u> (n=262) (\$8,700)
LTOP5	-0.082 (0.252)	-0.343 (0.235)	-0.145 (0.232)	-0.060 ^b (0.114)	0.207 (0.183)
R ²	0.127	0.115	0.093	0.053	0.134

See NOTE to TABLE 1.

TABLE 4: Stock Dispersion Effects on Executive Remuneration
Dependent Variable = ln (Contingent Pay)

(A) Full Sample

	<u>CEO</u> (n=195) (\$112,508)	<u>CB</u> (n=235) (\$119,767)	<u>PRES</u> (n=219) (\$90,289)	<u>OEXEC</u> (n=860) (\$49,123)	<u>OTHER</u> (n=294) (\$10,469)
LTOP5	-0.306 (0.220)	-0.322 (0.200)	-0.194 (0.200)	-0.150 (0.097)	-0.094 (0.185)
CL	-0.297 (0.293)	-0.075 (0.263)	-0.183 (0.274)	-0.026 (0.125)	-0.753 ^a (0.231)
R ²	0.129	0.124	0.106	0.102	0.106

(B) Owner Controlled Firm (CL=1)

	<u>CEO</u> (n=37) (\$90,320)	<u>CB</u> (n=53) (\$113,996)	<u>PRES</u> (n=50) (\$94,264)	<u>OEXEC</u> (n=700) (\$43,681)	<u>OTHER</u> (n=74) (\$7,376)
LTOP5	-1.055 (0.629)	-0.412 (0.469)	-0.084 (0.484)	0.063 (0.208)	0.332 (0.394)
R ²	0.176	0.149	0.073	0.051	0.075

(C) Not Owner Controlled Firm (CL=0)

	<u>CEO</u> (n=158) (\$117,704)	<u>CB</u> (n=182) (\$121,447)	<u>PRES</u> (n=169) (\$89,113)	<u>OEXEC</u> (n=660) (\$50,772)	<u>OTHER</u> (n=220) (\$11,509)
LTOP5	-0.206 (0.239)	-0.306 (0.227)	-0.229 (0.227)	-0.226 ^b (0.110)	-0.032 (0.212)
R ²	0.123	0.121	0.147	0.122	0.090

See NOTE to TABLE 1.

TABLE 5: Estimated Agency Costs

	<u>Total Income</u>	<u>Salary</u>	<u>Benefits</u>	<u>Contingency Pay</u>
(1) Full Sample				
(A) 10% decrease in ownership concentration				
CEO	\$5,837*	\$3,909*	\$51	\$3,443
CB	10,689*	6,852*	2,108*	3,856
PRES	5,115*	2,993*	81	1,752
OEXEC	1,670*	1,413*	88	737*
OTHER	486	775*	81	--
(B) 50% decrease in ownership concentration				
CEO	\$29,185*	\$19,545*	\$255	\$17,215
CB	53,445*	34,260*	10,540*	19,325
PRES	25,575*	14,965*	405	8,760
OEXEC	8,350*	7,065*	440	3,685*
OTHER	2,450	3,875*	405	--
(2) Owner-Controlled Firms				
(A) 10% decrease in ownership concentration				
CEO	\$ 6,485	\$3,383	\$192	\$9,529*
CB	9,866*	5,727*	1,217	4,697
PRES	3,527	2,282	--	792
OEXEC	1,041	949	--	--
OTHER	552	534	23	--
(B) 50% decrease in ownership concentration				
CEO	\$32,425	\$16,915	\$ 960	\$47,645*
CB	49,330*	28,635*	6,085	23,485
PRES	17,635	11,410	--	3,960
OEXEC	5,205	4,745	--	--
OTHER	2,760	2,670	115	--
(3) Not Owner-Controlled Firms				
(A) 10% decrease in ownership concentration				
CEO	\$ 4,219	\$3,086*	\$460	\$2,425
CB	9,717*	6,925*	2,171*	3,716
PRES	6,004*	3,769*	726	2,041
OEXEC	2,223*	1,848*	164	1,147*
OTHER	459	938*	--	37
(B) 50% decrease in ownership concentration				
CEO	\$21,095*	\$15,430*	\$ 2,300	\$12,125
CB	48,585*	34,625*	10,855*	18,580
PRES	30,020*	18,845*	3,630	10,205
OEXEC	11,115*	9,240*	820	5,735*
OTHER	2,295	4,690*	--	185

NOTE: For each remuneration category, we report the dollar estimates for a 10% (Panel A) and 50% (Panel B) decrease in the percentage of stock held by the top five stockholders. Blanks indicate a positive coefficient, yet none of these effects was significant. An * indicates that the effect was insignificant.

APPENDIX: Table A1 - Variable Definitions, Descriptive Statistics, and Data Sources

<u>Variable</u>	<u>Definition</u>	
TOP5 (X)	Percentage of stock held by the top five stockholders (Source: CDE); $LTOP5 = \ln(TOP5)$	28.75 (16.78)
P	Net Income as a Percentage of Stockholder Equity (1980) (Source: Fortune, May 1981)	26.34 (32.45)
S	The total number of people employed in 1980 (Source: Fortune, May 1981); $LEMP80 = \ln(EMP80)$	34,272.83 (56,548.71)
G	Average growth (percentage) in sales, 1978 to 1980 (Source: Fortune)	17.85 (17.54)
CL	Dummy=1 if any of the top five managers is also one of the top five stockholders (Source: CDE)	0.29 (0.46)
EL	Dummy=1 if any of the managers in question is also one of the top five stockholders (Source: CDE)	0.08 (0.27)
CEO	Dummy=1 if the respondent is the Chief Executive Officer (Source: SEC, Corporate Proxy Statements)	0.14
CB	Dummy=1 if the respondent is the Chairman of the Board (Source: SEC, C.P.S.)	0.18
PRES	Dummy=1 if the respondent is the President (SEC)	0.17
OEXEC	Dummy=1 if the respondent is in the top five group, but is neither the CEO, CB, or PRES (SEC)	0.66
CEOCB	Dummy=1 if CEO and CB (Source: CDE)	0.10
CEOPRES	Dummy=1 if CEO and PRES (CDE)	0.03
CEOTH	Dummy=1 if CEO and any other executive title (CDE)	0.002
CBPRES	Dummy=1 if CB and PRES (CDE)	0.001
CBOTH	Dummy=1 if CB and any other executive title (CDE)	0.007
PRESOTH	Dummy=1 if PRES and any other executive title (CDE)	0.056
FAM5	Dummy=1 if a family interest is a major stockholder (CDE) 0.54	
COM5	Dummy=1 if a company is a major stockholder (CDE)	0.65
FIN5	Dummy=1 if a financial co. is a major stockholder (CDE)	0.97

NOTE: Means are reported with select standard deviations in parentheses.
Data sources are listed in parentheses after the variable definitions.

TABLE A2: Stock Dispersion Effects on Executive Remuneration
Dependent Variable = ln (Total Income)

(A) Full Sample				
	<u>CEO</u> (n=236)	<u>CB</u> (n=305)	<u>PRES</u> (n=294)	<u>OEXEC</u> (n=1,123)
LTOP5	-0.095 ^c (0.051)	-0.184 ^a (0.053)	-0.116 ^b (0.050)	-0.066 ^a (0.025)
EL	-0.149 ^b (0.074)	-0.078 (0.067)	-0.016 (0.090)	-0.127 ^c (0.071)
R ²	0.426	0.348	0.320	0.329
(B) Owner Controlled Firm (EL=1)				
	<u>CEO</u> (n=41) (\$476,489)	<u>CB</u> (n=76) (\$478,741)	<u>PRES</u> (n=32) (\$452,609)	<u>OEXEC</u> (n=36) (\$297,107)
LTOP5	-0.309 ^b (0.132)	-0.254 ^b (0.119)	-0.550 ^b (0.208)	0.085 (0.156)
R ²	0.482	0.194	0.516	0.545
(C) Not Owner Controlled Firm (EL=0)				
	<u>CEO</u> (n=195) (\$612,146)	<u>CB</u> (n=229) (\$627,152)	<u>PRES</u> (n=262) (\$466,514)	<u>OEXEC</u> (n=792) (\$304,462)
LTOP5	-0.021 (0.054)	-0.144 ^b (0.058)	-0.083 (0.053)	-0.072 ^a (0.025)
R ²	0.423	0.381	0.330	0.325

NOTE: Parameter estimates are reported with standard errors in parentheses. Superscripts a,b and c denote 1%, 5% and 10% significance levels, respectively. Regressions are reported separately, reading left to right, for the Chief Executive Officer (CEO), the Chairman of the Board (CB), the President (PRES), and other executives in the top five pay group (OEXEC). Each regression additionally includes all controls listed in the appendix table (full results are available on request); each column includes the relevant joint position dummies (e.g. CEO includes CEOCB, CEOPRES and CEOTH).

n = number of observations

\$ value = average compensation

LTOP5 = log of the percentage of stock held by the top five stockholders

EL = dummy variable (=1) if any of the managers in question is also one of the top five stockholders

TABLE A3: Stock Dispersion Effects on Executive Remuneration
Dependent Variable = ln (Salary)

(A) Full Sample

	<u>CEO</u> (n=298)	<u>CB</u> (n=381)	<u>PRES</u> (n=372)	<u>OEXEC</u> (n=1,127)
LTOP5	-0.085 ^b (0.039)	-0.159 ^a (0.038)	-0.083 ^b (0.037)	-0.063 ^a (0.192)
EL	-0.111 ^b (0.054)	-0.036 (0.047)	-0.088 (0.062)	0.163 ^a (0.052)
R ²	0.382	0.386	0.322	0.363

(B) Owner Controlled Firm (EL=1)

	<u>CEO</u> (n=55) (\$381,654)	<u>CB</u> (n=92) (\$375,998)	<u>PRES</u> (n=43) (\$354,072)	<u>OEXEC</u> (n=49) (\$239,416)
LTOP5	-0.196 ^c (0.104)	-0.189 ^c (0.097)	-0.208 (0.126)	-0.034 (0.113)
R ²	0.371	0.198	0.467	0.480

(C) Not Owner Controlled Firm (EL=0)

	<u>CEO</u> (n=243) (\$457,823)	<u>CB</u> (n=289) (\$458,825)	<u>PRES</u> (n=329) (\$361,486)	<u>OEXEC</u> (n=1,366) (\$227,222)
LTOP5	-0.034 (0.041)	-0.137 ^a (0.039)	-0.077 ^c (0.039)	-0.067 ^a (0.020)
R ²	0.398	0.455	0.339	0.361

See NOTE to TABLE A2.

TABLE A4: Stock Dispersion Effects on Executive Remuneration
Dependent Variable = ln (Benefits)

(A) Full Sample

	<u>CEO</u> (n=249)	<u>CB</u> (n=312)	<u>PRES</u> (n=303)	<u>OEXEC</u> (n=1,151)
LTOP5	-0.073 (0.201)	-0.362° (0.191)	-0.041 (0.188)	-0.023 (0.090)
EL	-0.127 (0.277)	-0.180 (0.243)	-0.195 (0.326)	-0.290 (0.256)
R ²	0.107	0.093	0.083	0.058

(B) Owner Controlled Firm (EL=1)

	<u>CEO</u> (n=41) (\$32,236)	<u>CB</u> (n=70) (\$45,655)	<u>PRES</u> (n=34) (\$44,851)	<u>OEXEC</u> (n=36) (\$18,709)
LTOP5	-0.388 (0.382)	-0.548 (0.351)	-0.691 (0.788)	-0.462 (0.680)
R ²	0.261	0.198	0.127	0.341

(C) Not Owner Controlled Firm (EL=0)

	<u>CEO</u> (n=208) (\$54,525)	<u>CB</u> (n=242) (\$61,115)	<u>PRES</u> (n=269) (\$45,262)	<u>OEXEC</u> (n=1,115) (\$24,458)
LTOP5	0.023 (0.233)	-0.280 (0.227)	-0.007 (0.199)	-0.024 (0.091)
R ²	0.166	0.106	0.089	0.054

See NOTE to TABLE A2.

TABLE A5: Stock Dispersion Effects on Executive Remuneration
Dependent Variable = ln (Contingent Pay)

(A) Full Sample

	<u>CEO</u> (n=194)	<u>CB</u> (n=234)	<u>PRES</u> (n=296)	<u>OEXEC</u> (n=1,127)
LTOP5	-0.313 (0.221)	-0.298 (0.200)	-0.212 (0.199)	-0.158 (0.097)
EL	-0.256 (0.336)	-0.319 (0.277)	-0.504 (0.439)	-0.444 (0.300)
R ²	0.127	0.129	0.109	0.104

(B) Owner Controlled Firm (EL=1)

	<u>CEO</u> (n=27) (\$88,038)	<u>CB</u> (n=45) (\$106,493)	<u>PRES</u> (n=15) (\$82,183)	<u>OEXEC</u> (n=23) (\$54,622)
LTOP5	-0.168 ^b (0.727)	-0.443 (0.538)	-4.676 ^a (0.943)	0.248 (0.693)
R ²	0.326	0.146	0.935	0.613

(C) Not Owner Controlled Firm (EL=0)

	<u>CEO</u> (n=167) (\$116,720)	<u>CB</u> (n=189) (\$123,191)	<u>PRES</u> (n=204) (\$90,885)	<u>OEXEC</u> (n=834) (\$49,002)
LTOP5	-0.166 (0.234)	-0.269 (0.219)	-0.167 (0.203)	-0.170 ^c (0.097)
R ²	0.118	0.122	0.120	0.101

See NOTE to TABLE A2.