MANAGERIAL COMPENSATION AND THE THREAT OF TAKEOVER

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Abstract

The threat of takeover acts to discipline managers and so reduces the agency problems between managers and shareholders. But it also makes shareholder assurances to managers less reliable and so interferes with contracting between them. These two effects have opposing implications about the level of executive compensation: the disciplinary effect implies a reduction in compensation; the contracting effect implies an increase. Which of the two effects dominates is an empirical issue. We examine the relation between managerial compensation and the (industry-wide) threat of takeover to address this issue. Using compensation data for the CEOs of over 500 firms and after controlling for other determinants of executive compensation found in prior studies, we find a consistently positive effect of the threat of takeover, indicating that the contracting effect dominates. The magnitude of this net contracting effect is economically significant. A 10% increase in the annual probability of takeover from 4.6% to 5.06% results in an increase of $7,300 in the typical CEO's annual salary plus bonus and an increase of $10,100 in his annual total compensation. Among CEOs without golden parachutes, this increase is even larger at $11,200 in salary plus bonus and $15,000 in total compensation. We also find a direct positive effect of the presence of a golden parachute on CEO compensation. These results do not seem to be driven by industry effects and are robust to alternative specifications. Together, they provide evidence on an important way in which the market for corporate control affects internal contracting and add to the growing literature on the determinants of the level of executive compensation.

Managerial Compensation and the Threat of Takeover

The threat of takeover is a two-edged sword for the shareholders of a firm. As argued by Manne (1965) and Jensen and Ruback (1983), the more active the market for corporate control the more incentive managers have to maximize firm value. That is, the threat of takeover reduces the agency problem between managers and shareholders. But the threat of takeover also creates a problem. As suggested by Knoeber (1986) and Shleifer and Summers (1988), a more active market for corporate control interferes with internal contracting by making shareholder assurances to managers less reliable. Importantly, the threat of takeover makes managers less willing to invest in firm-specific human capital.

The two edges of the sword have different implications about managerial compensation. The discipline imposed on managers by the threat of takeover reduces their ability to substitute their own interest for that of the shareholders. One obvious issue on which these interests diverge is managerial compensation. Managers desire to be paid more; shareholders desire to pay less. Excess compensation, like excess perquisite consumption, should be less the stronger is the discipline from the market for corporate control. The greater the threat of takeover, then, the lower will be managerial compensation. Conversely, reduced reliability of shareholder assurances caused by the threat of takeover makes a manager's investment in firm-specific human capital riskier.[1] To induce such investment,

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[1]Martin and McConnell (1991) find that chief executive officers (CEOs) of approximately 60% of target firms lose their jobs over a three year period around successful tender-offers. Agrawal and Walkling (1994) find a similar turnover rate for target CEOs around takeover attempts (whether successful or not) by merger or tender-offer. Moreover, they find that these executives fail to find new senior executive positions in public companies in the subsequent three years. These findings suggest that a large part of a typical CEO's human capital may be firm-specific and that CEOs have reason to fear losing this human

shareholders must make the investment more rewarding. That is, they must pay the manager more. The greater the threat of takeover, then, the higher will be managerial compensation.

To test these implications, we use compensation data for the CEOs of over 500 firms. We first reproduce the empirical relation between managerial compensation and investment opportunities, firm size, accounting return, and regulation found by Smith and Watts (1992) at the industry level, using our firm level data. We then include a variable measuring the industry-wide threat of takeover faced by a firm. Finally, we include a variable indicating the presence of a golden parachute. We find a consistently positive relation between the threat of takeover and managerial compensation, suggesting that it is the interference with internal contracting effect that dominates. Incorporating the golden parachute variable provides additional evidence consistent with this finding. These results are robust to the inclusion of a measure of firm diversification and those managerial characteristics which Rose and Shepard (1994) find to affect CEO compensation, an alternative measure of the threat of takeover, the presence of various anti-takeover devices, and industry effects.

The paper is organized as follows. Section I analyzes the effects of the threat of takeover on executive compensation and how the presence of golden parachutes affects this relation. Section II outlines our empirical approach. Section III details the sample selection procedure and describes the data. Section IV presents our empirical results. Section V provides several checks for the robustness of our main results. Section VI summarizes and concludes the paper.

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capital in the event of a takeover bid.

I. Effects of the Threat of Takeover

The threat of takeover has two effects on the agency relationship between managers and shareholders. First, because it imposes discipline on managers, it reduces the agency problem between the manager and shareholders. We refer to this as the disciplinary effect of the threat of takeover. Second, because it makes shareholder assurances less reliable, it interferes with contracting between the manager and shareholders. We refer to this as the contracting effect of the threat of takeover. One important example of the latter is managerial investment in firm-specific human capital (Shleifer and Summers, 1988). Since the threat of takeover reduces the reliability of shareholder assurances, managerial investments in firm-specific human capital are riskier. Similarly, less reliable assurances from shareholders make deferred compensation arrangements riskier for the manager (Knoeber, 1986).[2] The contracting and disciplinary effects of the threat of takeover have distinct implications for the level of managerial compensation. These implications are altered by the presence of a golden parachute. Moreover, the two effects of the threat of takeover have different implications about the relation between golden parachutes and managerial compensation.

A. Implications of the Contracting Effect

Where the threat of takeover is greater, shareholder assurances are less reliable. As

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[2]Eaton and Rosen (1983), Lambert (1983) and Knoeber (1986) discuss the advantages of deferred compensation contracts for executives. Knoeber further emphasizes that the threat of takeover discourages the use of contracts that implicitly defer compensation.

a consequence, managers will require higher compensation to induce them to invest in firm-specific human capital (or agree to deferred compensation arrangements).[3] The contracting effect, then, implies a positive relation between the threat of takeover and managerial compensation. But this relation may be affected by the existence of golden parachutes. A golden parachute provides assurance to a manager that investments in firm-specific human capital will be rewarded (or deferred compensation will be paid) and so makes shareholders' promises reliable (see Knoeber, 1986 and Jensen, 1988).[4] The positive relation between the threat of takeover and managerial compensation caused by unreliable shareholder assurances, then, should disappear (or become weaker) where golden parachutes exist. Moreover, the contracting effect suggests a direct relation between the existence of golden parachutes and managerial compensation. Where golden parachutes serve to assure managers of shareholder reliability, they facilitate investment in firm-specific human capital. This greater investment makes managers more productive and so will result in greater

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[3]It is not necessary that the prospect of expropriating managerial rents motivate takeovers. Indeed, these rents are likely too small to do so. The threat of takeover interferes with internal contracting because it is easier for new owners, whatever motivates a takeover, to behave opportunistically toward existing managers than it was for the previous owners. Where the threat of takeover is greater, so too is the threat of opportunism toward managers (Knoeber, 1986). It is this greater risk of opportunism that necessitates greater compensation and is the source of the contracting effect.

[4]To assure managers of their reliability, shareholders would like the size of the golden parachute payment to be sufficient to compensate a manager for his loss of the return on his firm-specific human capital (or his implicitly deferred compensation) following a takeover. A very large payment would accomplish this but might also provoke unreliability on the part of the manager. That is, the manager might now induce a takeover to "earn" the golden parachute payment. If the intent of a golden parachute is to assure managers of shareholder reliability, then the size of the payment should equal the likely cost to a manager (lost firm-specific human capital) of a takeover (see also Jensen, 1988, p.40). In our empirical analysis, we presume this to be the case.

compensation. Managerial compensation should be positively related to the existence of golden parachutes.

B. Implications of the Disciplinary Effect

Where the threat of takeover is greater, managers will be less able to increase their compensation at shareholder expense (see Brickley and James, 1987).[5] As a consequence, managerial compensation will be lower. The disciplinary effect, then, implies a negative relation between the threat of takeover and managerial compensation. Once again, this relation may be affected by the existence of golden parachutes. But here, there are two opposing forces. Because a golden parachute makes a takeover less costly to a manager, the threat of takeover provides less discipline. The negative relation between the threat of takeover and managerial compensation should weaken where golden parachutes exist. However, if golden parachutes become more desirable to managers the greater is the threat of takeover, managers will be willing to accept larger reductions in compensation in order to acquire them the greater is the threat of takeover. This suggests a stronger negative relation between the threat of takeover and managerial compensation in the presence of golden parachutes than otherwise. So, the presence of golden parachutes has no clear implication for the negative relation between the threat of takeover and managerial compensation implied by the disciplinary effect. Similarly, the disciplinary effect has no

[5]While particularly egregious overcompensation might motivate a takeover, fear of inducing a takeover is not the primary source of the disciplinary effect on managerial compensation. Rather, where takeovers are more likely, for whatever reason, managers are also more likely to face the discipline associated with new ownership.

clear implication for the relation between golden parachutes and managerial compensation. If golden parachutes are desirable, managers will be willing to sacrifice compensation to acquire them. Managerial compensation should be negatively related to the existence of golden parachutes. But managers less subject to discipline (from shareholders or the market for corporate control) will have greater opportunities to advance their interests at the expense of shareholders. Since both pay and golden parachutes are desirable, we might see more of both where agency problems are more severe and less of both where agency problems are less severe. This suggests a positive relation between managerial pay and the existence of golden parachutes.

C. Summary of Empirical Implications

The contracting effect of the threat of takeover offers three unambiguous predictions that we can test: (1) Managerial compensation should be positively related to the threat of takeover. (2) This positive relation should only arise where golden parachutes do not exist. In the presence of golden parachutes, the threat of takeover should have no effect on managerial compensation. (3) Golden parachutes and managerial compensation should be positively related. The disciplinary effect provides one unambiguous prediction. Managerial compensation should be negatively related to the threat of takeover. Both the effect of the existence of golden parachutes on this relation and the existence of the disciplinary effect on the relation between golden parachutes and managerial compensation are unclear.

II. Empirical Approach

To test the implications of the disciplinary and contracting effects of the threat of takeover on managerial compensation, we look cross-sectionally at the determinants of CEO compensation. Although no other study has considered the threat of takeover, several recent empirical studies have sought to explain the variation across firms in the level of managerial compensation. We adopt and extend their framework.

Smith and Watts (1992), using industry level data, find that the log of median CEO salary in an industry increases with growth opportunities (measured as the market value of a firm/book value of its total assets), firm size (log sales), and firm performance (accounting return), and is smaller for regulated industries (insurance, banking, and utilities).[6]

Gaver and Gaver (1993, 1994) find similar results using firm level data. In the earlier paper, they find that the average cash compensation for a firm's five highest paid executives increases with growth opportunities (measured by an index), firm size (log of assets), and firm performance (accounting income). The later paper uses the same measures to explain total compensation of CEOs and finds similar relations.

Rose and Shepard (1994) find that larger firms (log sales), better performing firms (various performance measures), and more diversified firms all pay CEOs more (log of CEO salary plus bonus; log of total compensation). They also examine several characteristics of

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[6]Murphy (1985) and Coughlan and Schmidt (1985) find, in samples of unregulated firms, that executive compensation is higher in larger firms and firms with better (stock price) performance. Agrawal, Makhija and Mandelker (1991) find similar results for regulated firms.

the CEO, including whether or not he founded the firm, whether or not he was hired as CEO from outside the firm, age at appointment as CEO, and tenure as CEO. While statistical significance is much lower for these characteristics (except for the outsider variable, the coefficient estimates are statistically insignificant), founders received lower compensation while outsiders, older, and longer serving CEOs received higher compensation.

We frame our tests using these prior empirical findings. To begin, we use firm level data to estimate a cross-sectional regression patterned after that of Smith and Watts. Specifically, we estimate the following equation:[7]

log Compensation = f(Growth Opportunities, log Sales, Regulation, Accounting Return).

Our intent is to examine the relations found by Smith and Watts at the industry level with firm level data, and so we expect positive coefficients for the Growth, Sales, and Accounting Return variables, and a negative coefficient for the Regulation dummy. We then add an industry level measure of the threat of takeover to our set of explanatory variables. By measuring the threat of takeover at the industry level, we avoid the (possible) simultaneity problem that could confound a firm level measure. The coefficient of this takeover threat variable tests for the dominance of the disciplinary vs. the contracting effect on managerial compensation. A negative sign would indicate that the disciplinary effect dominates; a positive sign would indicate that the contracting effect dominates.

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[7]Our estimations employ both salary plus bonus and total compensation as measures of CEO compensation.

Next, we add a variable indicating the presence of a golden parachute protecting the CEO. In addition, we now include the takeover threat variable separately for firms with golden parachutes and for firms without golden parachutes. If the contracting effect of the threat of takeover dominates, we predict that the golden parachute variable will have a positive coefficient and that the takeover threat variable will now have a positive coefficient only for those firms without golden parachutes. If the disciplinary effect of the threat of takeover dominates, we have no prediction as to the sign of the coefficient on the golden parachute variable nor the effect of golden parachutes on the relation between managerial compensation and the takeover threat variable.

Finally, in order to examine the robustness of our results, we include a measure of firm diversification along with the characteristics of CEOs that Rose and Shepard used to explain CEO compensation. We expect these variables to have effects on managerial compensation similar to those found by Rose and Shepard, and that their inclusion will leave unchanged the relation of managerial compensation to our other variables. Further checks for robustness include introducing an alternative measure of the threat of takeover and including variables indicating the presence of various antitakeover devices.

III. Sample and Data

Our sample consists of the set of "Forbes 800" firms. These are firms that appear in any of the four lists, made by Forbes magazine, of the 500 largest U.S. firms as measured

by sales, total assets, market value of equity or profits. Together, the four lists include about 800 firms. For each firm, we obtain the following data from Forbes magazine's annual survey of top executive compensation for 1987: the CEO's salary plus bonus (SALB), his total compensation (TCOMP)[8], his age at the time of appointment as the CEO (AGEAPPT), number of years in the CEO position (TENURE), whether he founded the company (FOUNDER = 1 if he did; 0 otherwise), and whether he was appointed to the CEO position from outside the company (OUTSIDER)[9].

The following data are obtained from COMPUSTAT annual files (Industrial, Industrial Research, OTC and OTC Research): total assets (ASSET), net sales (SALES), the measure of firm growth opportunities (GROWTH) and cashflow return (CR). GROWTH is defined as the inverse of the A/V measure in Smith and Watts (1992):

$$\text{GROWTH} = \text{V/ASSET}$$

where:

$$\text{V} = \text{EQUITY} + \text{LTD} + \text{STD} + \text{PFD} + \text{CV},$$

EQUITY = Market value of equity,

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[8]TCOMP equals SALB plus payments made under long-term compensation plans, restricted stock awards vested or released from restrictions during the year, thrift plan contributions, and other benefits. Ideally, it should also include the *ex-ante* value of stock options granted during the year. Unfortunately, this data is not reported in Forbes. However, evidence from prior studies indicates that this value is relatively small (see, e.g., Murphy (1985)). Therefore, its omission should not cause a significant bias.

Forbes does report the realized value of stock options. Since realizations are infrequent and large, their inclusion introduces noise into the total compensation measure. Despite this, all the subsequent results are similar when we add this value to our measure of total compensation. Hence, we do not report this latter measure in the tables.

[9]OUTSIDER = 1 if the CEO was not the company's founder and had been with the company less than four years at the time of appointment as CEO; it is zero otherwise. This definition follows Rose and Shepard (1994).

LTD = Book value of long-term debt,

STD = Book value of short-term debt,

PFD = Preferred stock at liquidating value,

CV = Book value of convertible securities,

ASSET = Book value of total assets.

Cashflow return (CR) is defined as in Healy, Palepu and Ruback (1992):

$$CR = OCF/V$$

where:

OCF = Operating cashflow = Sales - Cost of goods sold - Selling and administrative expenses + Depreciation.

Healy, Palepu and Ruback argue that the CR measure is superior to traditional measures of accounting performance because it is based on cashflows rather than accounting profits and because it uses an estimate of the market value (rather than book value) of assets.

We estimate the takeover threat for a firm (TTHREAT) as the relative frequency of takeovers of NYSE firms in its 2-digit SIC industry over the seven year period preceding December 31, 1987. This procedure is based on Palepu's (1986) evidence that the industry of a firm is an important determinant of its probability of acquisition. The exact procedure we use is as follows. We obtain a list of all firms that were listed on NYSE as of December 31, 1980 from CRSP files. From these firms, we next identify all firms that were delisted over the next seven years due to a merger or reorganization. We then compute an

industry-specific probability of takeover over this period using the 2-digit SIC code.[10]

We define a firm to be regulated (REG = 1), if its primary SIC code indicates that it is a railroad, public utility, banking, finance, or insurance firm (two-digit SICs 40, 48, 49, 60, 61, or 63); otherwise, REG = 0.

Next, we obtain data on whether the CEO's employment contract contained a golden parachute as of the year-end of 1987 from the 1989 Directory of Corporate Takeover Defenses published by the Investor Responsibility Research Center. We define GP = 1, if the CEO had a golden parachute; otherwise, GP = 0.

Finally, we define a measure of firm diversification (DIVERSE) as the number of different lines of business (at the 3-digit SIC industry level) that the firm operates. This data is obtained from Standard and Poor's Register of Corporations, Directors, and Executives.[11] We use this simple measure of diversification (which is not the principal measure used by Rose and Shepard but is very similar to their NUMSEG measure) because the effect of diversification is not the primary focus of this paper.

We are able to obtain this data for about 542 firms. Table 1 presents summary statistics of each variable. The average salary plus bonus of the CEOs in our sample is $812 thousand (median = $688 thousand) and their average total compensation is $918 thousand (median = $736 thousand). About 48% of the CEOs had golden parachutes in their employment contracts. The average CEO was appointed at age 48 and had held the CEO

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[10]We do not use 3- or 4-digit SIC industry codes to avoid forcing the probability of takeover to equal zero due to the small number of firms in some industries using these narrower industry definitions. We chose the NYSE firms for this purpose because they are large firms, similar to the Forbes 800 population.

[11]The S&P Register reports up to 20 different 4-digit SIC industry codes for a firm.

position for 8.8 years. About 17% of the CEOs had been appointed from outside the firm, and about 9% were founders. The average firm in our sample had a growth opportunities measure of 1.17 (median = .90). The median firm had sales of about $2.2 billion, total assets of $2.6 billion, cashflow return of 15%, and operated in three lines of business. About 25% of the sample firms were regulated. The probability of takeover in the industry of the median firm was 27% over the 7-year period or about 4.4% per year.

Table 2 presents the product-moment correlation coefficients among the variables. The two compensation variables (log of the CEO's salary plus bonus (LSALB) and the log of total compensation (LTCOMP)) are positively related to each other and to the log of sales (LSALES), cashflow return (CR), takeover threat (TTHREAT), the presence of golden parachutes (GP) and the degree of diversification (DIVERSE); each is also negatively related to regulation (REG). In addition, the threat of takeover (TTHREAT) is negatively related to regulation (REG) and to the age at which the CEO was appointed (AGEAPPT). And the presence of a golden parachute (GP) is negatively related to the tenure of the CEO (TENURE) and whether the present CEO founded the business (FOUNDER); it is positively related to the degree of diversification (DIVERSE) and the CEO's appointment from outside the firm (OUTSIDER). Several of the other variables are also significantly related to each other.

IV. Empirical Results

A. The Threat of Takeover and Managerial Compensation

Our first task is to use our firm level data to re-examine the empirical relation between managerial compensation and growth opportunities, firm size, accounting return, and regulation that Smith and Watts (1992) document using industry level data. To do so, we use ordinary least squares, OLS, to estimate

(1) LSALB = f(GROWTH, LSALES, CR, REG).

To mimic Smith and Watts' findings, the coefficients on GROWTH, LSALES, and CR should be positive and the coefficient on REG should be negative. The results of our estimation are displayed in the first column of Table 3. The similarity between these results and those of Smith and Watts is striking. In each case, we find coefficients with the same sign and strikingly similar magnitude as those in Smith and Watts. Moreover, the statistical significance of these coefficients is greater using our firm level data than that found by Smith and Watts using industry level data. We also estimated (1) using our measure of total compensation, LTCOMP, as the dependent variable. Column 4 shows that these results are very similar.

Our next task is to use this framework to test for the effect that the threat of takeover has on managerial compensation. To do so, we add the threat of takeover as an additional explanatory variable

(2) LSALB = f(GROWTH, LSALES, CR, REG, TTHREAT).

If the disciplinary effect of the threat of takeover dominates, the coefficient on

TTHREAT will be negative; if the contracting effect dominates, the coefficient on TTHREAT will be positive. We use OLS to estimate equation (2) and report our results in the second column of Table 3 (again, results using total compensation are very similar, and are reported in column 5). The threat of takeover is positively and significantly related to managerial compensation, indicating that the contracting effect dominates. The elasticity of a CEO's salary plus bonus with respect to the threat of takeover, evaluated at the mean value for the threat of takeover, is .09 (.11 for total compensation). This implies that a 10 percent increase in the threat of takeover (from .28 to .31 as we measure it or from .046 to .051 per year) causes an increase in the CEO's salary plus bonus (again, evaluated at the mean value of SALB) of $7,300 (the corresponding increase in total compensation is $10,100).[12,13]

B. The Effect of Golden Parachutes

We next examine the effect of the existence of golden parachutes on both the level of managerial compensation and the relation between compensation and the threat of takeover. To do so, we include the presence of a golden parachute as an additional explanatory variable and also include the threat of takeover separately for firms which do

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[12]This is an estimate of the *net* effect on CEO compensation of the disciplinary and contracting effects of the threat of takeover. Since these two effects oppose one another, our estimate likely understates the size of the (dominant) contracting effect alone.

[13]The finding that a greater threat of takeover leads to greater managerial compensation does not imply that an increased threat of takeover is "bad news" for the shareholders of a firm. While an increased threat of takeover brings with it additional managerial compensation costs, it may also bring better behavior by managers. If this second effect dominates, as is likely, an increased threat of takeover will be "good news" for shareholders.

and do not provide a golden parachute to their CEO.[14]

(3) LSALB = f(GROWTH, LSALES, CR, REG, TTHREAT*GP,

TTHREAT*(1-GP), GP).

Given our finding that the contracting effect dominates (the threat of takeover is positively related to managerial compensation), we expect that the coefficient on TTHREAT*GP will be zero, that on TTHREAT*(1-GP) will be positive, and that on GP will be positive. The OLS estimate of equation (3), reported in the third column of Table 3 (and the corresponding estimate with LTCOMP as the dependent variable, reported in column 6), confirm our expectations. In the presence of a golden parachute, the threat of takeover has no effect on managerial compensation (the coefficient on TTHREAT*GP is indistinguishable from zero). The relation between the threat of takeover and managerial compensation for firms without golden parachutes remains positive and statistically significant (the coefficient on TTHREAT*(1-GP) is both larger and statistically more significant than that on TTHREAT in column 2 or column 5).[15] And there is a positive and statistically significant relation between the presence of a golden parachute and the

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[14]We treat the presence of a golden parachute as exogenous. This is in keeping with our (and Smith and Watts) treatment of firm size, growth opportunities, and accounting return. Because each of these is to some degree selected by the firm, our analysis is necessarily partial.

[15]The elasticity of SALB with respect to TTHREAT (evaluated at the mean TTHREAT) for the firms without golden parachutes (non-GP firms) is .14. So a 10% increase in the threat of takeover from .29 to .32 (i.e., from .048 to .054 per year) yields (on average) a 1.4% increase in salary plus bonus for CEOs of non-GP firms. Evaluated at their mean salary plus bonus of $797 thousand, this works out to about $11,200. The corresponding figure where no distinction was made between firms with and without golden parachutes was $7,300. Similarly, for firms without golden parachutes, a 10% increase in the threat of takeover leads to an increase of $15,000 in total compensation, substantially more than the average of $10,100 for all firms.

level of managerial compensation.

V. Robustness Checks

A. Firm Diversification

To assess the robustness of these findings, we consider several issues. First, we add a measure of firm diversification, DIVERSE, like that which Rose and Shepard found to be positively related to CEO compensation, along with the variables for CEO characteristics that they considered. We do this in two stages. Initially, we estimate a relation like that in Rose and Shepard.

(4) LSALB = f(DIVERSE, LSALES, CR, TENURE, AGEAPPT, OUTSIDER, FOUNDER, REG).

We include the regulation variable (with a predicted negative coefficient) because our sample includes regulated firms while that of Rose and Shepard did not. Otherwise, equation (4) mimics that in Rose and Shepard, and so we expect similar results. DIVERSE should have a positive coefficient, as should LSALES, CR, and OUTSIDER. And the coefficients on TENURE, AGEAPPT, and FOUNDER will all likely be insignificantly different from zero. Next, we expand equation (3) to include the firm diversification and CEO characteristics variables considered by Rose and Shepard.[16]

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[16]Again, we estimate both equation (4) and equation (5) twice, once using LSALB and once using LTCOMP as the dependent variable.

(5) LSALB = f(GROWTH, LSALES, CR, REG, TTHREAT*GP,
TTHREAT*(1-GP), GP, DIVERSE, TENURE, AGEAPPT,
OUTSIDER, FOUNDER).

We expect the new variables to have coefficients similar to those in equation (4), and we expect their addition to have little effect on the coefficients of the original variables.

OLS estimates of equations (4) and (5) are presented in the first and second columns of Table 4. The corresponding estimates using LTCOMP to measure managerial compensation are presented in columns 3 and 4. The first and third columns are very similar to the results in Rose and Shepard. DIVERSE, LSALES, CR, and OUTSIDER all have the expected positive relation to managerial compensation. And TENURE, AGEAPPT, and FOUNDER are all statistically insignificant. The second and fourth columns provides evidence that our earlier results are robust. The new variables (DIVERSE, OUTSIDER, etc.) perform as in columns 1 and 3, and their inclusion has no effect on the relations between the original variables and managerial compensation shown in Table 3.

B. Measurement of the Threat of Takeover

Second, we consider an alternative measure of the threat of takeover. Recall that TTHREAT for a firm is the relative frequency of takeovers among NYSE firms in the same 2-digit SIC industry as the firm over the seven year period preceding the end of 1987. Our use of this variable implicitly assumed that this (industry) measure of the threat of takeover is stable over a fairly long period. This may not be the case. Bursts of takeover activity in

an industry may be followed by little activity, making a measure that depends on activity as much as seven years earlier a poor measure of the present threat of takeover. To address this possibility, we constructed a new TTHREAT measure using the same procedure as before except limiting the time period to the three years preceding the end of 1987. We then re-estimated the Table 3 regressions in which TTHREAT appears using this new TTHREAT variable. The results are quite similar. Columns 5 and 6 of Table 4 present these results for the models in columns 3 and 6 of Table 3.

C. Antitakeover Defenses

Third, because antitakeover devices may work like golden parachutes to insulate managers from the threat of takeover, we also estimated the models shown in Table 3 with variables indicating three types of antitakeover devices included. The source for each was the 1989 Directory of Corporate Takeover Defenses. The variable ATCA = 1 if any antitakeover charter amendment was in place at the end of 1987 (classified board, fair price provision, or supermajority provision); ATCA = 0 otherwise. The variable PP = 1 if a poison pill was in place at the end of 1987; PP = 0 if not. The variable DC = 1 if the firm had dual classes of stock; DC = 0 otherwise. Adding these variables does not affect the results reported in Table 3. The coefficients on ATCA, PP, and DC are all positive, but none has a statistically significant effect on managerial compensation. Neither does their inclusion alter the effects of the other variables reported in Table 3.

D. Industry Effects

Finally, we explored our data set to determine if our (industry) measure of the threat of takeover could be proxying for some other industry characteristic that itself was correlated with managerial compensation. If this were true, the positive relation between managerial compensation and the threat of takeover that we observe may be spurious. We found only one possibility. Table 5 presents summary statistics on CEOs' salary plus bonus ordered by deciles of the threat of takeover separately for firms with and without golden parachutes. For firms without golden parachutes, salary plus bonus is markedly smaller for firms facing little threat of takeover (the first two deciles). No other pattern appears in the data. This is also true with total compensation (not shown in the table). The explanation for the low values of managerial compensation for firms facing a small threat of takeover is straight forward and has little to do with the issues raised in this paper. Most of the firms (without golden parachutes) in decile 1 and all of the firms in decile 2 are electric and gas utilities.[17] It is well known that executives in public utilities receive lower compensation than industrial firms (see, e.g., Agrawal, Makhija and Mandelker, 1991). But this fact is not what drives our finding of a positive relation between managerial compensation and the thereat of takeover. Since we have included in our regressions a dummy variable for regulated firms (predominately electric and gas utilities), we have already controlled for this relation. As far as we can determine, our measure of takeover threat does not proxy for

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[17]In all, we have 77 electric and gas utilities in our sample. Except for this concentration, however, our sample has very broad industry coverage. A total of 56 industries (2-digit SIC classification) are represented. The industries with the next largest number of firms are chemicals with 38 and fabricated metals with 34. No other industry has more than 26 firms.

some other industry characteristic related to managerial compensation.

VI. Conclusion

The external market for corporate control has two opposing effects on the compensation of managers. Because it disciplines managers, it acts to reduce excess compensation. But it also interferes with internal contracting. For example, it is harder to induce managers to invest in firm-specific human capital because shareholder assurances are less reliable. So shareholders must pay more to induce such desirable investments. Whether the disciplinary effect or the contracting effect dominates is an empirical issue.

We examine the relation between managerial compensation and the (industry-wide) threat of takeover to resolve this issue. The disciplinary effect implies a negative relation between managerial compensation and the threat of takeover; the contracting effect implies a positive relation. Using compensation data for the CEOs of over 500 firms and after controlling for other determinants of executive compensation found in prior studies, we find a consistently positive effect of the threat of takeover, indicating that the contracting effect dominates. The magnitude of the contracting effect, net of any disciplinary effect, is economically significant. A 10% increase in the threat of takeover from 4.6% per year to 5.06% per year results in an increase in a typical CEO's annual salary plus bonus of $7,300 and an increase in total compensation of $10,100; for firms without golden parachutes, these increases are $11,200 and $15,000 respectively. We also find a direct positive effect of the

presence of a golden parachute on CEO compensation. These findings are robust to the effects on managerial compensation of firm diversification, measurement of the threat of takeover, the presence of various antitakeover devices, and industry effects. Together, they provide evidence on an important way in which the market for corporate control affects internal contracting. They also add to the growing literature on the determinants of the level of executive compensation.

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Table 1

Descriptive Statistics

Variable[1]	Mean	Median	Standard Deviation	First Quartile	Third Quartile	Sample Size
SALB ($'000)	812	688	823	464	972	542
TCOMP ($'000)	918	736	943	499	1089	542
SALES ($ millions)	4441	2152	8549	1175	4282	542
ASSETS ($ millions)	5606	2603	9630	1150	5680	542
GROWTH	1.17	.90	.88	.73	1.37	542
CR	.16	.15	.10	.12	.18	542
REG	.25	0	.44	0	1	542
TTHREAT	.28	.27	.14	.21	.34	541
GP	.48	0	.50	0	1	523
DIVERSE	4.6	3	4.4	2	6	537
TENURE	8.8	6	8.6	3	13	542
AGEAPPT	47.9	49	8.5	43	54	539
OUTSIDER	.17	0	.37	0	0	542
FOUNDER	.09	0	.28	0	0	542

[1]The variables are defined as follows:

SALB = CEO's Salary plus Bonus, fees and commissions.

TCOMP = SALB plus payments made under long-term compensation plans, restricted stock awards vested or released from restrictions during the year, thrift plan contributions, and other benefits.

SALES = Net Sales.

ASSET = Total Assets.

GROWTH = V/ASSET,

V = Firm value, defined as market value of equity plus book value of long-term debt, preferred stock, convertible securities and short term debt.

CR = Cashflow return = operating income before depreciation/V.

REG = 1, if the firm is in a regulated industry (banking, finance, insurance, public utility or railroad); 0 otherwise.

TTHREAT = Takeover threat measured as the relative frequency of acquisitions in the 2-digit SIC industry of a firm (among firms listed on NYSE as of December 31, 1980) during 1981-87.

GP =1, if the firm had a golden parachute for the CEO as of the year-end of 1987 according to the 1989 Directory of Takeover Defenses published by the Investor Responsibility Research Center; 0 otherwise

DIVERSE = Degree of diversification, measured as the number of different lines of business the firm operates at the 3-digit SIC industry level.

TENURE = The number of years the individual has held the CEO position in the company.

AGEAPPT = The CEO's age at appointment to the CEO position.

OUTSIDER =1, if the individual had been with the company less than four years before being appointed to the CEO position, unless he was the company's founder; 0 otherwise.

FOUNDER = 1 if the current CEO founded the company; 0 otherwise.

Table 2

Correlations[1]

	LTCOMP	GROWTH	LSALES	CR	REG	TTHREAT	GP	DIVERSE	TENURE	AGEAPPT	OUTSIDER	FOUNDER
LSALB	.95[a]	.05	.43[a]	.22[a]	-.28[a]	.18[a]	.13[a]	.26[a]	.07	-.02	.04	-.03
LTCOMP		.03	.42[a]	.22[a]	-.28[a]	.19[a]	.14[a]	.26[a]	.06	-.01	.04	-.05
GROWTH			-.32[a]	-.34[a]	-.26[a]	.03	-.05	-.09[b]	.14[a]	-.17[a]	-.04	.21[a]
LSALES				.27[a]	-.17[a]	.12	-.06	.27[a]	-.16[a]	.24[a]	-.12[a]	-.18[a]
CR					-.01	.01	.02	.07	-.12[a]	.12[a]	-.04	-.10[b]
REG						-.34[a]	-.04	-.24[a]	-.05	.03	.09[b]	-.05
TTHREAT							.01	.07	.05	-.09[b]	.02	.07
GP								.13[a]	-.13[a]	.07	.09[b]	-.14[a]
DIVERSE									-.03	.15[a]	-.03	-.16[a]
TENURE										-.66[a]	-.01	.46[a]
AGEAPPT											-.04	-.44[a]
OUTSIDER												-.14[a]

[a]Statistically significant at the 1% level in 2-tailed test.

[b]Statistically significant at the 5% level in 2-tailed test.

[1]Variables are defined in Table 1.

Table 3

Explaining Managerial Compensation[1]

	Dependent Variable = LSALB			Dependent Variable = LTCOMP		
	Model 1[2]	Model 2	Model 3	Model 1	Model 2	Model 3
CONSTANT	4.51[a] (24.16)	4.41[a] (23.07)	4.25[a] (21.63)	4.58[a] (22.47)	4.46[a] (21.37)	4.29[a] (20.03)
GROWTH	.14[a] (4.86)	.14[a] (5.05)	.15[a] (5.35)	.12[a] (3.93)	.12[a] (4.12)	.13[a] (4.35)
LSALES	.22[a] (10.37)	.22[a] (10.32)	.22[a] (10.13)	.23[a] (9.71)	.23[a] (9.65)	.23[a] (9.36)
CR	.96[a] (4.24)	.99[a] (4.36)	1.14[a] (3.89)	1.02[a] (4.14)	1.05[a] (4.25)	1.26[a] (3.93)
REG	-.20[a] (-3.83)	-.16[a] (-2.90)	-.15[a] (-2.71)	-.24[a] (-4.19)	-.19[a] (-3.18)	-.18[a] (-3.02)
TTHREAT		.33[b] (2.05)			.40[b] (2.30)	
TTHREAT*GP			.19 (.73)			.18 (.62)
TTHREAT*(1-GP)			.47[b] (2.41)			.60[a] (2.83)
GP			.26[a] (2.64)			.32[a] (2.96)
Adjusted R^2	.268	.273	.295	.253	.260	.284
Sample Size	542	541	522	542	541	522
p-value of F-test	<.001	<.001	<.001	<.001	<.001	<.001

[1]Variables defined in Table 1.

[2]t-statistics in parentheses.

[a]Statistically significant at the 1% level in 2-tailed test.

[b]Statistically significant at the 5% level in 2-tailed test.

Table 4

Explaining Managerial Compensation: Robustness Checks[1]

	Dependent Variable = LSALB		Dependent Variable = LTCOMP		Dependent Variable = LSALB	Dependent Variable = LTCOMP
	Model 4[2]	Model 5	Model 4	Model 5	Model 6[3]	Model 6[3]
CONSTANT	5.01[a] (21.55)	4.28[a] (16.30)	5.05[a] (20.01)	4.35[a] (15.16)	4.30[a] (22.27)	4.38[a] (20.73)
GROWTH		.16[a] (5.63)		.14[a] (4.64)	.14[a] (4.95)	.12[a] (4.00)
LSALES	.20[a] (9.13)	.23[a] (10.34)	.21[a] (8.77)	.24[a] (9.53)	.22[a] (10.08)	.23[a] (9.33)
CR	.73[a] (3.32)	1.23[a] (4.28)	.82[a] (3.47)	1.35[a] (4.30)	1.09[a] (3.72)	1.22[a] (3.79)
REG	-.23[a] (-4.62)	-.11[b] (-2.02)	-.26[a] (-4.75)	-.14[b] (-2.35)	-.17[a] (-3.31)	-.22[a] (-3.85)
THREAT*GP		.10 (.38)		.07 (.25)	-.14 (-.36)	-.39 (-.89)
THREAT*(1-GP)		.39[b] (2.04)		.53[b] (2.50)	.87[a] (2.70)	.81[b] (2.31)
GP		.25[a] (2.58)		.31[a] (2.92)	.32[a] (3.65)	.37[a] (3.85)
DIVERSE	.02[a] (3.13)	.02[a] (2.88)	.02[a] (2.97)	.02[a] (2.69)		
TENURE	.01 (1.63)	.01 (1.83)	.01 (1.64)	.01 (1.82)		
AGEAPPT	-.01 (-1.43)	-.01 (-1.55)	-.01 (-1.49)	-.01 (-1.64)		
OUTSIDER	.18[a] (3.08)	.19[a] (3.30)	.19[a] (2.99)	.20[a] (3.16)		
FOUNDER	.02 (.19)	-.02 (-.28)	-.03 (-.36)	-.07 (-.78)		
Adjusted R^2	.273	.332	.266	.318	.297	.281
Sample Size	534	514	534	514	522	522
p-value F-test	<.001	<.001	<.001	<.001	<.001	<.001

[1]Variables defined in Table 1.

[2]t-statistics in parentheses.

[3]The TTHREAT measure in this column is the relative frequency of takeovers in the industry of the firm over the last 3 years.

[a]Statistically significant at the 1% level in 2-tailed test.

[b]Statistically significant at the 5% level in 2-tailed test.

Table 5

Summary Statistics of CEO Salary plus Bonus ($'000) for Firms in Different TTHREAT Deciles, Grouped by the Existence of Golden Parachute Contract (GP) for the CEO

TTHREAT	CEOs with no GP (n = 273)			CEOs with GP (n = 249)		
DECILE	MEAN	MEDIAN	STANDARD DEVIATION	MEAN	MEDIAN	STANDARD DEVIATION
1 (low)	444	399	238	834	572	1256
2	446	385	255	915	839	378
3	713	700	382	883	867	294
4	964	878	646	748	661	302
5	1080	500	2826	806	833	303
6	1028	804	785	832	757	404
7	771	702	502	703	711	261
8	868	805	352	861	672	659
9	851	860	333	753	588	390
10	777	726	376	1029	794	799