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Keywords

CEOs, pensions, SEC, disclosure requirements

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CEOs often receive pensions that provide life annuities of up to 60% of their final salary plus bonus. I investigate the extent to which pensions are managerial rent extraction and/or the result of optimal contracting between CEOs and boards of directors. Specifically, I examine whether CEOs exploit limited disclosure requirements to hide and/or camouflage excess pension benefits and whether pensions are associated with CEO power and/or contracting determinants. Overall, my results provide some support for both the managerial power and optimal contracting views of pensions. Economic contracting variables, however, appear to explain pension benefit levels to a greater extent than measures of CEO power. This suggests that although pensions can be used to extract rents, this practice appears to be limited. In addition, my results suggest that pension-based rent extraction can be detected using public disclosures, implying that recent SEC changes in pension disclosure requirements are likely to have little effect on investors' ability to value pensions.

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1. Introduction

CEO compensation has long been a major focus of accounting research. Although this research provides considerable evidence on annual bonuses and stock options, it rarely considers benefits such as pensions. But revelations of large, poorly disclosed pensions such as the $750 thousand monthly payment that General Electric offered its former CEO, Jack Welch, raise important questions about the level and precision of pension disclosures and the role of pensions in CEO contracts.

Questions such as these prompted the Securities and Exchange Commission ("SEC") to implement significant regulatory changes in compensation disclosures, including pensions. As of December 15, 2006, the SEC requires firms to disclose in proxy statements the annual accrual of pension benefits and the present value of accrued pension benefits for each of a firm's top five executives. Although these changes increase the level of pension disclosures and the penalties for disclosures that are false, misleading, and/or of poor quality, firms continue to exercise discretion in the disclosure of pension benefits (Den Uyl and Frederick 2006; Scannell and Lublin 2006).

The changes in SEC disclosure requirements are consistent with the view of some commentators, institutional investors, and academics that pensions offer substantially greater opportunities for managerial rent extraction than other compensation mechanisms (e.g., Colvin 2001; Bebchuk et al. 2002; Hodgson 2004). Proponents of this "Managerial Power View" make two arguments against CEO pensions. First, limited disclosure requirements enable CEOs to hide and/or camouflage excess pension benefits. Second, CEOs with power over their boards of

directors extract rents through pensions because pension payments are less observable and less sensitive to performance than other forms of long term compensation.[1]

An alternative view, from the economics and finance literature, is that boards of directors represent the interests of shareholders and therefore structure contracts to meet the CEO's reservation wage, to minimize agency costs, and to minimize joint tax burdens (e.g., Core et al. 2005). According to this "Optimal Contracting View," boards substitute pensions for other forms of compensation and incentives when pensions provide optimal incentives and/or minimize joint tax burdens (e.g., Lazear 1979; Scholes et al. 2002; Edmans 2006). This view implies that contracting determinants (e.g., firm-level economic factors, tax rates, labor market conditions) primarily determine the provision and disclosure of CEO pension benefits.

Given these conflicting views on CEO pensions, I examine the determinants of CEO pensions and the associations between CEO pensions, disclosure choices, and excess compensation. Specifically, I investigate the extent to which discretionary disclosures are associated with excess pension benefits, and the relation between pensions and CEO power and/or contracting determinants.

Using both proprietary data and public disclosures under the pre-2007 regulations, I examine the difference between pension valuations estimated using full information on plan characteristics, and valuations using only public disclosures and common valuation assumptions. I find that firm disclosures that exclude key plan characteristics lead to downwardly biased estimates of pension benefits in some cases. But even using the pre-2007

[1] SEC Commissioner Roel Campos stated publicly that Professor Bebchuk's research was "very influential" in the drafting of the new pension disclosure regulations (Lublin and Dvorak 2007).

disclosure requirements, the biases are small in the vast majority of cases, suggesting that SEC disclosure changes are likely to have little effect on investors' ability to value pensions. Moreover, the evidence indicates that CEOs do not pursue disclosure policies that hide and/or camouflage excess pension benefits.

I find that contracting variables are the primary determinants of pension benefit levels, but find mixed support for the claim that more powerful CEOs receive higher pension benefit levels. Even if disclosures lead to biased estimates of pension values and pension benefit levels are higher than expected, these facts have little impact on shareholders if they do not lead to excessive *total* compensation. I therefore investigate whether pensions are associated with *total* excess compensation. Although economic factors are the primary determinants of pension benefit levels, I find a positive association between pensions and *excess* compensation, consistent with the Managerial Power View that pensions can be used to extract additional rents.

Overall, my results provide some support for both the Managerial Power and Optimal Contracting Views. Economic contracting variables, however, appear to explain the variation in pension benefit levels to a greater extent than measures of CEO power. This suggests that although pensions can be used for rent extraction in some cases, this practice appears to be limited. In addition, my disclosure results suggest that rent extraction can be detected using public disclosures.

This study makes two contributions. First, in light of recent regulatory changes, it provides insight into the level and precision of compensation disclosures. Second, this study contributes to the literature on agency problems and executive compensation by investigating

the relative ability of the Managerial Power and Optimal Contracting Views to explain the level and mix of pensions in CEO contracts.

The remainder of the paper is structured as follows. Section 2 provides institutional background on CEO pensions. Section 3 develops the hypotheses and Section 4 discusses the samples and empirical measures. Section 5 discusses the results and Section 6 concludes.

2. Institutional Background

Firms often grant CEOs pensions that provide life annuities of up to 60% of their final average salary plus bonus (Sundaram and Yermack 2006). Pensions supplement other retirement benefits (e.g., deferred compensation and defined contribution plans), but are typically larger in monetary terms and do not require explicit ongoing contributions from participants (Clark Consulting 2005).

Pensions come in two forms: qualified plans and non-qualified plans. The Department of Labor regulates qualified plans under the Employee Retirement Income Security Act ("ERISA"). ERISA prohibits qualified plans from providing benefits on salaries greater than $220,000 and dictates minimum funding levels and participation requirements. The Pension Benefit Guaranty Corporation ("PBGC") insures qualified plans against firm bankruptcy. In addition, qualified plans receive beneficial tax treatment: firms can fund qualified plans and receive a current tax deduction without imposing an immediate tax liability on the participant.

Non-qualified plans do not receive beneficial tax treatment. If a firm funds a non-qualified plan, the plan must be at risk of firm bankruptcy to avoid imposing an immediate tax liability on the participant. Most non-qualified plans are therefore unfunded. Non-qualified

plans are not insured by the PBGC and are not subject to ERISA maximum benefit, funding, and participation requirements.

There are two types of non-qualified plans: restoration plans and supplemental executive retirement plans ("SERPs"). Restoration plans provide benefits on salaries above the $220,000 ERISA limit using the same formula as an associated qualified plan. SERPs calculate retirement benefits using formulas that differ from those of qualified plans.

Qualified and non-qualified plans are not mutually exclusive. Some firms include top executives in broad based qualified plans up to the ERISA salary limit, and then provide additional benefits using non-qualified plans. In this study, I examine total benefits provided to the CEO under all plans.

Qualified plans, restoration plans, and SERPs calculate annual retirement payments as a percentage of final average earnings for either the last three or five years of employment. Final average earnings for qualified and restoration plans include base salary, while final average earnings for SERPs most often include base salary and annual bonus. Plans generally calculate the annual retirement payment as 1.5–2.5% multiplied by the service years credited. Some firms cap payments at 50–60% of final average earnings.

CEOs typically accrue one service year per employment year. Some firms, however, grant multiple service years to new hires or to CEOs who are leaving office (Yermack 2006). For example, when Roy Vagelos left office as CEO, Merck granted him an additional 17 service years with an approximate value of $7.4 million.

Non-qualified plans are often at risk of firm bankruptcy. Non-qualified plans are also often at risk of rescission because boards can revoke and/or renegotiate benefits. Some firms

protect their CEOs from these risks by using Rabbi and Secular trusts. Rabbi Trusts obligate the firm to provide pension benefits up to the trust's funding level. Rabbi Trusts do not protect plans from bankruptcy and firms can therefore fund Rabbi Trusts without imposing immediate tax liabilities on CEOs (Morse et al. 1997). Secular Trusts protect plans from the firms' creditors. Because Secular Trusts provide bankruptcy protection, CEOs incur immediate tax liabilities upon funding.

Some firms allow the CEO to take a lump sum payout of the present value of accrued pension benefits either at retirement or when leaving office in lieu of receiving the pension in the form of a life annuity. When calculating the value of lump sum payouts, firms can use favorable discount rates and/or mortality tables. For example, a BBB rated firm can use the 30 Year US Treasury Rate instead of its cost of debt when calculating a lump sum value. Such a change in discount rates can increase a pension's value by over 30%.[2]

For proxy statements filed prior to December 15, 2006, the SEC did not require firms to disclose the following: the present value of accrued pension benefits, the annual accrual of pension benefits, the annual retirement payment, lump sum payout options, Rabbi Trusts, and Secular Trusts.

If a firm provided pension benefits based on final average earnings and service years, the SEC required the firm's proxy statement to include a table displaying annual retirement payments classified by final average earnings and service years. Along with the table, firms were required to provide a narrative explanation of the executives' service years and how final

[2] The example assumes retirement at age 60 in December 2003 with a life expectancy based on the Social Security Life Expectancy Table. At that time, the ten year BBB rate was 6.20% and the 30 year US Treasury rate was 3.25%.

average earnings were calculated. It required firms to provide final average earnings only if final average earnings differed by more than 10% from those shown in the Summary Compensation Table. If the firm based payments on a mechanism other than service years and final average earnings, the SEC required a narrative explanation. Appendix A provides these disclosure requirements.

For proxy statements filed on or after December 15, 2006, the SEC requires firms to include the annual accrual of pension benefits in the Summary Compensation Table, and to disclose the present value of accrued pension benefits in the Retirement Plans Section. These changes are incremental to the earlier disclosure regulations. Under the new regulations, the SEC still does not require firms to disclose lump sum payout options or the existence of Rabbi Trusts and Secular Trusts. Appendix B presents the new disclosure requirements.

3. Hypothesis Development

In this section I develop hypotheses to test the Managerial Power and Optimal Contracting Views on CEO pensions. Specifically, I develop hypotheses about the discretionary disclosure of pension benefits, the determinants of pension benefits, and the association between pension benefits and excess compensation.

3.1. Disclosure Policies

Proponents of the Managerial Power View argue that limited disclosure requirements enable CEOs to hide and/or camouflage excess pension benefits through discretionary disclosure policies that lead outside observers to make downwardly biased estimates of pension values (e.g., Bebchuk and Fried 2004; Hodgson 2004; Gordon 2005). This argument does not

imply that outside observers have irrational expectations about the level of bias in their estimates. It does, however, imply that observers cannot identify individual CEOs who hide and/or camouflage excess pension benefits.

Proponents of this view assume that CEOs hide and/or camouflage excess pension benefits because pensions are scrutinized by outside observers who can constrain CEO actions. This assumption appears valid—large institutional investors pursue proxy voting policies that call for increased pension disclosures and limits on excessive benefit levels.[3] Proponents also assume that the behavior of these outside observers does not lead firms to fully disclose pension benefits. Proprietary costs of disclosure can sustain a discretionary disclosure equilibrium in which firms do not fully disclose pension benefits (Verrecchia 1983). For example, firms in competitive industries may not disclose information about their top executives' compensation packages, because such disclosures would benefit competitors by providing information on incentives and reservation wages.

A necessary condition for the argument that CEOs exploit limited disclosure requirements to hide and/or camouflage excess pension benefits is that estimates based on public disclosures are downwardly biased. The first hypothesis, stated in the affirmative, tests this necessary condition.

> **H1A: Estimates of pension benefits based on public disclosures are downwardly biased.**

[3] For example, TIAA-CREF states in its Policy Statement on Corporate Governance that executive pensions "should not be used to enhance retirement benefits beyond that which is reasonable" and that the "discount rate used to calculate the lump-sum value of the pension entitlement should approximate the reinvestment rate available at retirement and should be disclosed."

Downward bias is only a necessary condition because proprietary costs of disclosure can be the sole reason that firms pursue disclosure policies that lead outside observers to make downwardly biased estimates. The Managerial Power View, however, implies that some CEOs use disclosure policies to hide and/or camouflage excess pension benefits. This leads to the second hypothesis.

H1B: Downward bias increases with excess pension benefits.

Proponents of the Managerial Power View often claim that powerful CEOs pursue disclosure policies that make it difficult to gauge their benefit levels. The role of CEO power, however, in the use of disclosure policies to hide and/or camouflage excess pension benefits is not clear. Powerful CEOs have greater influence on firm policies and are therefore better able to extract and hide excess pension benefits. But powerful CEOs could be indifferent to whether their rent extraction is observable because outside stakeholders may be unable to constrain the actions of powerful CEOs, implying that weak CEOs may have greater incentives to pursue such policies.

In addition, Singh (2006) shows theoretically that in the presence of director career concerns relatively independent boards reduce the disclosed level of CEO pay to signal independence. I therefore state the following non-directional hypothesis about the relation between CEO power and pension disclosures.

H1C: CEO power is associated with pension disclosure policies.

3.2. Determinants of Pension Benefits

Proponents of the Managerial Power View argue that CEOs with power over their boards extract rents in general. According to their argument, however, "outrage costs" arising

from the actions of the press, regulators, and institutional investors limit the extent to which CEOs can extract rents through current compensation (e.g., Bebchuk and Fried 2004). Proponents therefore postulate that powerful CEOs extract rents through pensions because pensions are less observable to outside stakeholders and less sensitive to current performance than other forms of compensation and incentives. Pensions are less observable because they are subject to limited disclosure requirements. Pensions are less sensitive to current performance because final average earnings and tenure determine total pension benefits.

Managerial Power View proponents claim that powerful CEOs either substitute pensions for other forms of compensation and incentives at beneficial rates, or complement other forms of compensation and incentives with pensions. In either case, according to their argument, CEO power is the primary, but not necessarily the sole, determinant of the level and mix of pension benefits in CEO contracts. This leads to the following hypothesis.

H2A: Pension benefits are positively associated with CEO power.[4]

Alternatively, and consistent with the Optimal Contracting View, economic models indicate that pension-like mechanisms can enter optimal contracts to address incentive problems when the agent is difficult to monitor, and there are gains from aligning the agent's interests with those of creditors.

Edmans (2006) theoretically investigates whether debt enters the optimal contract in the presence of agency costs of debt and equity. He finds that firms trade off agency costs of debt

[4] Kalyta and Magnan (2006) investigate a similar hypothesis, but assume that public disclosures lead to accurate estimates of pension benefits, that boards do not provide pensions for incentive purposes, and that pensions do not substitute for other forms of compensation and incentives. I extend their results by investigating these assumptions and by examining discretionary disclosure of pension benefits. In addition, I use a larger sample, allowing me to increase statistical power and control for industry effects that can be associated with governance.

and equity, and that debt enters CEO contracts when there are incentives to increase firm risk to the detriment of creditors (the "asset substitution problem"). By introducing debt into the CEO's contract, the firm aligns the CEO's interests with those of creditors, and therefore benefits from lower borrowing rates.

Pensions function as debt in CEO contracts because pensions are typically not bankruptcy protected. Consistent with Edmans's prediction, Sundaram and Yermack (2006) find for a sample of 237 large capitalization firms that the level of the CEO's pension benefits is positively associated with the firm's distance from default on its credit obligations. This leads to the following two hypotheses.

H2B: Pensions are positively associated with leverage.

H2C: Pensions are positively associated with higher quality credit ratings.

Baber et al. (1996) find that firms with greater investment opportunities use higher levels of equity based compensation and lower levels of accounting based compensation, such as annual bonuses. The annual bonus is a major determinant of final pension benefits, implying that firms with greater investment opportunities provide lower levels of pension benefits. In addition, pensions are typically unfunded, thus introducing debt into the CEO's contract, which can limit the riskiness of the CEO's investment decisions. This implies that firms with greater investment opportunities provide their CEOs with lower levels of pension benefits, leading to the following hypothesis.

H2D: Pensions are negatively associated with investment opportunities.

Another potential contracting benefit of pensions is tax planning (Scholes et al. 2002). Pensions represent a tax efficient form of compensation in three situations: when the firm can

earn a higher after tax rate of return than the CEO; when the CEO's marginal tax rate decreases during retirement; when the firm's marginal tax rate increases after the CEO retires.

Although pensions can assist in joint tax planning, taxes do not appear to be a major determinant of CEO pensions. First, CEO pensions are primarily non-qualified and therefore do not provide firms with immediate tax deductions. Second, unlike deferred compensation plans, the firm's after tax rate of return does not directly affect pension benefits. Third, the highest marginal tax rate applies to income over $326,449, which is probably below the pre-pension retirement income of most S&P 500 CEOs. Finally, if taxes drive pension benefits, then there should be introductions and terminations of pension plans related to changes in tax rates. Empirical evidence, however, suggests that firms do not introduce pensions in anticipation of increasing marginal tax rates.

Finally, there is an extensive labor economics literature on worker pensions (for a survey see McGill 2004). This literature primarily focuses on determinants such as retention, risk sharing, and retirement planning. Retention does not appear to be a major pension determinant for CEOs because they typically hold other long term incentives that are subject to vesting such as stock options. Risk sharing and retirement planning also do not appear to be major pension determinants because CEOs are typically wealthy individuals with access to outside financial planners and services.

3.3. Excess Compensation

Ultimately, the Managerial Power View rests on the assumption that pensions allow CEOs to earn excess compensation through rent extraction. Even if disclosures lead to biased estimates of pension values, and pension benefit levels are higher than expected, these facts

have little impact on shareholders if they do not lead to excessive *total* compensation. In addition, the labor economics literature finds evidence that pensions can complement and substitute for other forms of compensation, implying that pensions should not be investigated in isolation (McGill 2004).

To the extent that the Managerial Power View is descriptive, pensions should be associated with excess compensation, leading to the following hypothesis.

H3: Pension benefits are positively associated with excess compensation.

4. Samples and Research Design

4.1. Samples

I use two samples in the empirical analyses. The first sample consists of a proprietary data set of 172 publicly traded firms. A major compensation consultant surveyed these firms about the retirement benefits they provide to their top executives. The data are from fiscal 2003 and include pension plan information that firms are not required to disclose. Table 1 provides descriptive statistics for this proprietary sample. In untabulated analyses, I find that responding firms are similar in size to firms on the S&P 500 Index (of which two-thirds of this sample are members), but tend to have fewer investment opportunities.

The second sample consists of firms in the S&P 500 Index for either fiscal 2004, fiscal 2005, or both. Table 2 provides descriptive statistics for this sample.

4.2. Pension Valuations

I calculate the value of two life annuities for firms in the proprietary sample. For all firms in this sample, I calculate the first annuity based on actual plan details. For the firms that

provide lump sum payouts but do not disclose, I calculate the second life annuity based on public disclosures. To value the second annuity, I follow Sundaram and Yermack's (2006) methodology and use the firm's cost of debt and the Social Security Life Expectancy Table. To proxy for the cost of debt, I use the ten year corporate bond rate associated with the firm's S&P Long Term Debt Rating. Consistent with Sundaram and Yermack (2006), unrated firms are assumed to have a AAA rating. I assume that CEOs retire at the age specified by the plan. CEOs who are older than the plan specified age are assumed to retire at fiscal year end.

To value pension benefits for the S&P 500 sample, I estimate the CEO's annual retirement payment from the firm's proxy statements for fiscal 2004 and 2005. I calculate the value of four life annuities using two retirement age assumptions (62 and 65) and two mortality table assumptions (the Social Security Administration Life Expectancy Table and the 1983 General Annuitants' Mortality Table ["1983 GAM"])[5]. I use the mean of the four estimates in the empirical tests to reduce noise. CEOs who are older than the retirement ages are assumed to retire at fiscal year end. To proxy for the cost of debt, I use the ten year corporate bond rate associated with the firm's S&P Long Term Debt Rating. Consistent with Sundaram and Yermack (2006), unrated firms are assumed to have a AAA rating. I discount the annuity to fiscal year end using the cost of debt proxy. The annual accrual of pension benefits is the difference between the present values of accrued pension benefits as of fiscal year ends 2004 and 2005.

4.3. Asset Substitution Problem

[5] The 1983 GAM is the most common mortality table used by firms in the proprietary sample.

I create two measures meant to estimate asset substitution problems. First, incentives for CEOs and shareholders to increase firm risk at the expense of creditors are assumed to be positively correlated with the firm's leverage ratio (Gavish and Kalay 1983; Green and Talmor 1986). To measure leverage ratios, I calculate *LEVERAGE*, which is the ratio of short and long term debt to the book value of total assets.

Second, I use the firm's S&P Long Term Debt Rating to estimate default risk. I create indicator variables for the various ratings (*AAA/AA*, *A*, *BBB*, and *JUNK*) to control for non-linearities in default probabilities. AAA and AA are combined because there are only eight AAA firms in the S&P 500 for 2004 and six for 2005. I make two assumptions about the association between the asset substitution problem and the firm's default risk: firms with higher default risk have greater incentives to engage in asset substitution; firms with lower default risk take actions to minimize the potential for asset substitution and therefore benefit from lower borrowing costs.

4.4. Investment Opportunities

To measure investment opportunities I create four variables. First, firms with greater investment opportunities are assumed to have higher levels of uncertainty. To measure uncertainty I create *IDIOSYNCRATIC RISK*, which is the residual from a market model regression estimated over the 24 prior months. Second, investment opportunities are assumed to be negatively associated with the ratio of the book value of assets to the market value of assets, *BOOK TO MARKET*. Third, firms with greater investment opportunities are assumed to make greater investments in research and development. *R&D* is the ratio of the research and development expenditures to total assets. Finally, firms with greater investment opportunities

are assumed to have lower levels of fixed investments. To measure the level of a firm's fixed investments, I create *PP&E*, which is the ratio of the net value of property, plant, and equipment to total assets.

4.5. CEO Power

I create proxies to measure the following three dimensions of CEO power: anti-takeover charter amendments, institutional investor ownership, and board characteristics. CEOs of firms with more anti-takeover charter amendments are assumed to exercise greater power because they are insulated from the discipline provided by the market for corporate control. Consistent with this assumption, prior literature finds that CEOs of firms with more anti-takeover charter amendments have higher compensation and lower equity incentives (Borokhovich et al. 1997; Fahlenbrach 2002). To measure protection from the market for corporate control, I use *GINDEX*, which is the simple sum of the firm's anti-takeover protections (Gompers et al. 2003). This variable is taken from the IRRC Governance database.

Prior literature finds that institutional investors influence CEO compensation and turnover (Hartzell and Starks 2003; Parrino et al. 2003; Almazan et al. 2005). To measure the level and quality of institutional investor influence, I use *BLOCKHOLDERS*, the number of institutional investors holding 5% or more of the firm's common shares outstanding. Institutional ownership is taken from the CDA/Spectrum database of 13Fs.

The board of directors hires the CEO, provides direct monitoring of the CEO, negotiates the CEO's contract, and has authority to fire. Therefore, CEOs with more power over the board have more leeway to influence firm disclosure policies, and dictate their compensation and benefit packages.

I use five proxies to measure the CEO's power over the board. *CHAIR* is an indicator variable coded as one if the CEO chairs the board, and zero otherwise. CEOs who are also chairs are assumed to be relatively more powerful because they can set the board's agenda (Finkelstein and D'Aveni 1994). *BOARD SIZE* is the natural logarithm of the number of directors. CEOs of firms with larger boards are assumed to have more power because of increased coordination costs (Yermack 1996). *INSIDE DIRECTORS* is the percentage of insiders on the board, with a higher percentage of insiders expected to increase CEO power because CEOs have more influence over the careers of insiders (Byrd and Hickman 1992). *DIRECTOR AGE* is the mean age of the board. Older directors are assumed to be less effective in monitoring, providing the CEO with more power (Core et al. 1999). Finally, *INTERLOCKS* is the number of director interlocks on the board, with interlocked directors assumed to be less effective monitors because of reciprocal relations (Hallock 1997). I hand collect *CHAIR* from proxy statements and take the remaining board variables from the IRRC Directors database.

One criticism of these proxies is that they do not fully capture the CEO's power at the initiation of the pension plan. This point does not take into account that boards can and do renegotiate pension plans that are not trust protected. Another criticism of these proxies is that they represent CEO quality and should therefore be positively associated with compensation and benefit levels. Core et al. (1999) find, however that excess compensation determined by similar measures is associated with operating and stock return underperformance, suggesting that these proxies capture CEO power.

Both governance characteristics and CEO pensions cluster by industry (Larcker et al. 2005; Sundaram and Yermack 2006). I therefore industry adjust *GINDEX*, *BLOCKHOLDERS*, and

all board related variables, except for *CHAIR*, to control for industry effects that are correlated with governance. I subtract the industry means for the full populations of the IRRC and CDA/Spectrum databases from each variable. Firms are classified into 15 industries following Barth et al. (1998).

4.6. Control Variables

To control for proprietary costs of disclosure I calculate *COMPETITION*, which is the Herfindahl-Hirschman Index for the firm's industry (six digit NAICS). The Index is estimated on the entire Compustat population. Firms in more competitive industries are assumed to incur greater costs from disclosing proprietary details of the CEO's contract.

Firm performance can affect the level of pension benefits because pensions are partially a function of salary plus bonus. To control for performance, I use two variables: *ROA* is the ratio of net income to the book value of assets; *RETURNS* is the return on common equity for the prior fiscal year.

Finally, two additional variables control for other factors that can affect pension benefits. I create *CEO AGE* because pension benefits increase monotonically in age up to the plan's retirement age. In addition, to the extent that age is correlated with outside wealth, this variable controls for the effect of outside wealth on the CEO's compensation package. The final variable, *Ln(ASSETS)*, controls for size effects.

5. Results

I carry out five sets of empirical tests. The first set examines on a univariate basis discretionary disclosures of pension plan characteristics, and biases in estimates of pension

values based on public disclosures. The second set of tests examines the determinants of pension benefits. In the third set of tests I investigate whether pensions are associated with excess compensation. The fourth set examines the determinants of the provision and disclosure of pension plan details. The final set of tests investigates the determinants of bias in estimates of pension values based on public disclosures.

5.1. Plan Characteristics and Disclosure

I first investigate the Managerial Power View argument that firms provide limited disclosures of pension plan characteristics, and that these disclosures lead to downwardly biased estimates of pension values.

Table 3 Panel A tabulates the provision and disclosure of lump sum payout options, Rabbi Trusts, and Secular Trusts for the proprietary sample. I combine Rabbi and Secular trusts into the class "Protection" because only three firms in the sample protect the CEO's pension with a Secular Trust.

Of the 172 firms in the proprietary sample, 99 (58%) allow the CEO to take a lump sum payout at retirement. Of these 99 firms, 38 (38% of the firms that provide lump sum payouts) disclose in their proxy statements that they provide lump sum payouts. Of the 38 firms that do disclose, only one firm discloses the relevant discount rate. No firm discloses the relevant mortality table. Discretionary disclosure extends to protections. Of the 62 (36% of the proprietary sample) firms that provide their CEO with either a Rabbi or a Secular trust, only six firms (10% of the firms that protect) disclose this provision.

For the 61 firms in the proprietary sample that provide but do not disclose lump sum payouts, Table 3 Panel B presents descriptive statistics of the differences between pension

valuations based on public disclosures and valuations based on actual plan data. Differences are defined as bias, with negative differences representing downward bias in estimates based on public disclosures.[6]

For this sub-sample, estimates based on public disclosures are on average downwardly biased, but the biases are relatively small. Although the minimum is -$3.462 million (-29.32% of actual benefits), the mean is -$593.96 thousand (-7.50%), which is less than the sub-sample's mean annual salary of $1.0 million.[7] Moreover, some firms pursue disclosure policies that lead to overestimates of pension benefits—the maximum difference is $4.182 million (37.98%).

In summary, I find that some firms' disclosure policies do not provide complete information about the CEO's pension plan, and that these disclosure policies are associated with downwardly biased estimates of pension benefits. My results, however, do not support the hypothesis that estimates of pension values based on public disclosures are downwardly biased—relative to annual salary, bias is economically insignificant. In addition, the evidence suggests that the new SEC disclosure requirements are likely to have little impact on investors' ability to value pensions.

5.2. Pension Benefit Levels

I next examine the determinants of pension benefit levels. Given the small differences between public and proprietary pension valuations found in the preceding analyses, I assume that public disclosures are adequate to estimate pension benefits. This assumption allows me to increase the sample size and consequently the power of empirical tests.

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[6] Note that bias represents an underestimate of the present value of accrued pension benefits as opposed to the annual accrual of pension benefits.

[7] Biases are primarily driven by differences between the plan's discount rate and the firm's cost of debt. Mean bias based solely on differences in discount rates is -$435 thousand (-7.50%).

Table 4 presents analyses of pension benefit levels for S&P 500 CEOs in fiscal 2004 and 2005. Panel A presents estimates of the present value of their accrued pension benefits. The mean of their accrued pension benefits is $3.3 million for 2004 and $4.3 million for 2005.[8] Some CEOs hold relatively large pension benefits—the 99th percentiles are $23.6 million and $32.9 million for 2004 and 2005. Not all S&P 500 CEOs receive pension benefits—36% did not have pension benefits in 2004 and 38% did not in 2005. In untabulated analyses, I find that the mean of accrued benefits (conditional on receiving pensions) is $5.2 million in 2004 and $7.0 million in 2005.

Table 4 Panel B presents multivariate analyses of pension determinants. I estimate Tobit models to account for CEOs who do not receive pension benefits. Tobit assumes that the determinants of pension provision are the same as the determinants of pension level, conditional on provision. Unreported log likelihood tests strongly reject the null hypothesis of the same determinants (Lin and Schmidt 1984). I therefore present Probit models for the determinants of provision and Truncated Regression models for the level, conditional on provision. Tobit results are presented for comparison.

The dependent variable for the Tobit and Truncated Regression models is the natural logarithm of accrued benefits plus one. I use the natural logarithm because the distribution of pension benefits is skewed. The dependent variable in the Probit models is an indicator variable set equal to one if the CEO receives pension benefits, and zero otherwise.

[8] These estimates are similar in magnitude to prior research. Sundaram and Yermack (2006) find for a smaller sample of 237 CEOs of large capitalization firms that the mean present value of accrued pension benefits is $4.5 million.

First, I estimate the following specification to determine the ability of controls and contracting determinants to explain cross-sectional variation in pension benefit levels:

$$PENSION_{it} = \alpha + \beta_1 Ln(ASSETS)_{it} + \beta_2 CEO\ AGE_{it} + \beta_3 BOOK\ TO\ MARKET_{it} + \beta_4 R\&D_{it} + \beta_5 PP\&E_{it} + \beta_6 IDIOSYNCRATIC\ RISK_{it} + \beta_7 LEVERAGE_{it} + \beta_8 AAA/AA_{it} + \beta_9 A_{it} + \beta_{10} BBB_{it} + \beta_{11} JUNK_{it} + \varepsilon_{it}$$

Using only the controls and contracting determinants, all three models have significant explanatory power—the Pseudo R^2s for Tobit, Probit, and Truncated Regression are 0.25, 0.18, and 0.43.[9] In addition, Probit correctly classifies 75.51% of the observations using only the controls and contracting determinants.

The results for Tobit and Probit are similar. In both models, *BOOK TO MARKET* and *PP&E* are positive and significant, and *IDIOSYNCRATIC RISK* is negative and significant. These results are consistent with the hypothesis that pensions are negatively associated with investment opportunities.

For the asset substitution measures, I find that firms with higher quality debt ratings are more likely to provide pension benefits. Firms with AAA, AA, or A debt ratings are 24% more likely to provide their CEOs with a pension. Although the coefficients on *LEVERAGE*, *BBB*, and *JUNK* are positive as predicted, they are not significant at the 0.10 level. These findings suggest either that firms with higher quality debt ratings provide pensions to mitigate asset substitution problems, or that CEOs of firms with higher quality debt ratings are more likely to accept (potentially risky) pension benefits.

[9] I calculate Pseudo R^2s for Tobit and Truncated Regression as the square of the Pearson correlation between the predicted value and the dependent variable (Wooldridge 2002). I report McFadden R^2s for Probit.

In Truncated Regression, *Ln(ASSETS)* and *CEO AGE* are positive and significant. The coefficient on *Ln(ASSETS)* is 0.34, which is similar in magnitude to the size elasticities of other forms of compensation (Murphy 1999). In contrast to Tobit and Probit, I find conflicting results for the hypothesis that pensions are negatively associated with investment opportunities. *BOOK TO MARKET* is negative and significant, implying that, conditional on provision, pension benefits are positively associated with investment opportunities. In contrast to the prior results but consistent with the Probit and Tobit results, *PP&E* is positive and significant, implying that, conditional on provision, pension benefits are negatively associated with investment opportunities.

Inconsistent with Tobit and Probit, none of the asset substitution measures are associated with the level of pension benefits, conditional on their provision. These findings imply that although asset substitution is associated with the existence of a pension, size and growth opportunities determine the level of pension benefits.

Next, I estimate the following specification to determine the ability of CEO power measures to explain cross-sectional variation in pension benefits holding firm-level economic factors constant:

$$\begin{aligned} PENSION_{it} = {} & \alpha + \beta_1 Ln(ASSETS)_{it} + \beta_2 CEO\ AGE_{it} + \beta_3 BOOK\ TO\ MARKET_{it} + \beta_4 R\&D_{it} + \beta_5 PP\&E_{it} \\ & + \beta_6 IDIOSYNCRATIC\ RISK_{it} + \beta_7 LEVERAGE_{it} + \beta_8 AAA/AA_{it} + \beta_9 A_{it} + \beta_{10} BBB_{it} \\ & + \beta_{11} JUNK_{it} + \beta_{12} GINDEX_{it} + \beta_{13} BLOCKHOLDERS_{it} + \beta_{14} CHAIR_{it} + \beta_{15} BOARD\ SIZE_{it} \\ & + \beta_{16} INSIDE\ DIRECTORS_{it} + \beta_{17} DIRECTOR\ AGE_{it} + \beta_{18} INTERLOCKS_{it} + \varepsilon_{it} \end{aligned}$$

With the introduction of the CEO power measures, all three Pseudo R^2s increase: 0.33 for Tobit; 0.25 for Probit; 0.45 for Truncated Regression. F tests of these changes are significant at the 0.01 level for all three models. Although the Pseudo R^2s increase, the Probit correct

classification rate increases by only 1.08% to 76.59%. Furthermore, in all three models the coefficients on the controls, investment opportunity measures, and asset substitution measures maintain their signs and significance except for *R&D*, which is now negative and significant in Truncated Regression.

Consistent with the hypothesis that CEO power determines pension benefits, *CHAIR* is positive and significant in all models, and *BOARD SIZE* is positive and significant in Tobit and Probit. Inconsistent with the Managerial Power View, *INSIDE DIRECTORS* is always negative and significant. This finding is similar to the results of Core et al. (1999), and suggests that inside directors can provide higher quality monitoring than outside directors.

Tobit, Probit, and Truncated Regression measure mean effects. To investigate the extent of power for CEOs with high levels of pension benefits, I examine firms in the 95th percentile of pension benefits for 2004. Table 4 Panel C compares means of CEO power measures for firms in the 95th percentile to the entire S&P 500 and to firms in the S&P 500 that provide pension benefits. I exclude firms in the 95th percentile from both comparison groups.

Consistent with the Managerial Power View, firms in the 95th percentile have fewer blockholders, are more likely to combine the CEO and chair positions, and have older directors. Inconsistent with the Managerial Power View, firms in the 95th percentile have fewer inside directors compared to the full S&P 500 Index.

Overall, my findings suggest that firm-level economic characteristics and contracting determinants primarily determine the level of pension benefits, but that CEO power measures provide additional explanatory power. Although this additional explanatory power is statistically significant, CEO power measures provide only a modest increase of 1.08% in the

ability of a Probit model to predict which CEOs receive pension benefits. With respect to regression coefficients, pension benefits are positively associated with some measures of CEO power but, inconsistent with the Managerial Power View, pension benefits are negatively associated with inside directors.

5.3. Pension Benefits and Excess Compensation

I now investigate the Managerial Power View argument that pensions are associated with total excess compensation. Table 5 presents two OLS models that investigate the association between the annual pension accrual and excess compensation for S&P 500 CEOs in fiscal 2005.

To measure excess compensation, I estimate a first stage regression of the level of total non-pension compensation on contracting determinants and CEO power measures.

$$\begin{aligned} TOTAL\ COMPENSATION_{it} = {} & \alpha + \beta_1 Ln(ASSETS)_{it} + \beta_2 BOOK\ TO\ MARKET_{it} + \beta_3 CEO\ AGE_{it} \\ & + \beta_4 RETURNS_{it} + \beta_5 ROA_{it} + \beta_6 VOLATILITY_{it} + \beta_7 SD\ ROA_{it} \\ & + \beta_8 GINDEX_{it} + \beta_9 BLOCKHOLDERS_{it} + \beta_{10} CHAIR_{it} \\ & + \beta_{11} BOARD\ SIZE_{it} + \beta_{12} INSIDE\ DIRECTORS_{it} + \beta_{13} DIRECTOR\ AGE_{it} \\ & + \beta_{14} INTERLOCKS_{it} + \varepsilon_{it} \end{aligned}$$

I then calculate *EXCESS COMPENSATION* as the linear combination of the estimated CEO power coefficients from the first stage regression and the CEO Power measures.

$$\begin{aligned} EXCESS\ COMPENSATION_{it} = {} & \beta_8 GINDEX_{it} + \beta_9 BLOCKHOLDERS_{it} + \beta_{10} CHAIR_{it} + \beta_{11} BOARD\ SIZE_{it} \\ & + \beta_{12} INSIDE\ DIRECTORS_{it} + \beta_{13} DIRECTOR\ AGE_{it} + \beta_{14} INTERLOCKS_{it} \end{aligned}$$

The first model presented in Table 5 includes controls and contracting determinants, and the second model includes controls, contracting determinants, and CEO power measures. I include CEO power measures in the second model to investigate whether power is associated

with pension benefits after controlling for excess compensation.[10] The dependent variable in both models is the annual accrual of pension benefits.

$$PENSION\ ACCRUAL_{it} = \alpha + \beta_1 Ln(ASSETS)_{it} + \beta_2 CEO\ AGE_{it} + \beta_3 RETURNS_{it} + \beta_4 ROA_{it} + \beta_5 BOOK\ TO\ MARKET_{it} + \beta_6 R\&D_{it} + \beta_7 PP\&E_{it} + \beta_8 IDIOSYNCRATIC\ RISK_{it} + \beta_9 LEVERAGE_{it} + \beta_{10} AAA/AA_{it} + \beta_{11} A_{it} + \beta_{12} BBB_{it} + \beta_{13} JUNK_{it} + \beta_{14} EXCESS\ COMPENSATION_{it} + \varepsilon_{it}$$

$$PENSION\ ACCRUAL_{it} = \alpha + \beta_1 Ln(ASSETS)_{it} + \beta_2 CEO\ AGE_{it} + \beta_3 RETURNS_{it} + \beta_4 ROA_{it} + \beta_5 BOOK\ TO\ MARKET_{it} + \beta_6 R\&D_{it} + \beta_7 PP\&E_{it} + \beta_8 IDIOSYNCRATIC\ RISK_{it} + \beta_9 LEVERAGE_{it} + \beta_{10} AAA/AA_{it} + \beta_{11} A_{it} + \beta_{12} BBB_{it} + \beta_{13} JUNK_{it} + \beta_{14} GINDEX_{it} + \beta_{15} BLOCKHOLDERS_{it} + \beta_{16} BOARD\ SIZE_{it} + \beta_{17} INSIDE\ DIRECTORS_{it} + \beta_{18} DIRECTOR\ AGE_{it} + \beta_{19} INTERLOCKS_{it} + \beta_{20} EXCESS\ COMPENSATION_{it} + \varepsilon_{it}$$

Both models provide significant explanatory power. The Adjusted R^2s are 0.22 and 0.24. *Ln(ASSETS)* and *PP&E* are positive and significant in both models, implying that the annual pension accrual increases in firm size and fixed investments. *CEO AGE* is also positive and significant in both models, implying that the annual pension accrual increases in CEO age. In the second model, *RETURNS* is positive and significant, suggesting that the annual pension accrual increases with firm performance. *LEVERAGE* is negative and significant in both models. This suggests either that CEOs of highly levered firms are less likely to accept pension benefits, or pension benefits constrain CEOs from increasing firm leverage. Consistent with Table 4 Panel B, *AAA/AA* is positive and significant, implying that CEOs of firms with high quality debt ratings receive higher annual pension accruals.

EXCESS COMPENSATION is positive and significant in both models. One dollar of excess compensation is associated with between \$0.16–0.23 of accrued pension benefits. In the second model, *BOARD SIZE* is positive and significant and *INSIDE DIRECTORS* is negative and

[10] I do not include *CHAIR* in the second model because it is highly correlated (0.75)with *EXCESS COMPENSATION.*

significant, implying that, controlling for excess compensation, CEO power provides additional explanatory power for the annual pension accrual.

Results of this section support the Managerial Power View argument that pensions are associated with excess compensation—$1.00 of excess compensation is associated with a $0.16–0.23 increase in the present value of accrued pension benefits. This rate, however, implies that a significant amount of rent extraction is in the form of compensation that is subject to higher levels of disclosure than pensions. For example, on average a $1.00 increase in excess non-pension compensation is associated with an approximate $0.01 increase in the annual retirement payment provided by a pension.[11]

5.4. Determinants of Plan Disclosures

I now investigate the Managerial Power View argument that firms use limited disclosure to hide and/or camouflage relevant pension plan characteristics. Table 6 presents two Logistic regressions that investigate the disclosure of lump sum payout options and plan protections (Rabbi or Secular trust). These regressions are estimated on firms in the proprietary sample that provide lump sum payout options and plan protections. The regressions use the following specification:

$$DISCLOSE_{it} = \alpha + \beta_1 GINDEX_{it} + \beta_2 BLOCKHOLDERS_{it} + \beta_3 CHAIR_{it} + \beta_4 BOARD\ SIZE_{it} + \beta_5 INSIDE\ DIRECTORS_{it} + \beta_6 DIRECTOR\ AGE_{it} + \beta_7 INTERLOCKS_{it} + \beta_8 EXCESS\ PENSION_{it} + \beta_9 COMPETITION_{it} + \varepsilon_{it}$$

The dependent variable for disclosure of lump sum payouts is an indicator variable for whether the firm discloses the lump sum payout option in its proxy statement, conditional on provision. The independent variables are measures of excess pension benefits, industry

[11] This example assumes a life perpetuity with a 5% discount rate.

competition, and CEO power. I include a measure of industry competition to control for proprietary costs of disclosure, and I also include CEO power measures to investigate whether power is associated with disclosure policies. A measure of excess pension benefits is included to investigate whether disclosure policies are used to hide and/or camouflage excess pension benefits. I estimate excess pension benefits as the residuals from a benchmark model based on the specifications used in Table 4 Panel B. The benchmark model is estimated on the entire proprietary sample and includes firm controls, asset substitution measures, investment opportunity measures, and CEO power measures.

The dependent variable for protection disclosure is an indicator variable for whether the firm discloses in its proxy statement that it protects the CEO's pension, conditional on protecting the plan. The independent variables are measures of excess pension benefits, industry competition, and CEO power. I include a measure of excess pension benefits to investigate whether excess pension benefits are associated with less disclosure. A measure of industry competition is included to control for proprietary costs of disclosure, and CEO power measures are included to investigate whether power is associated with disclosure policies.

Although correct classification rates range from 63.12% to 90.70%, none of the regressions are significant at the 0.05 level. In addition, none of the coefficients are significant at the 0.10 level.

Overall, I find that although firms exercise discretion in the disclosure of lump sum payouts and protections, disclosure policies are not associated with excess pension benefits, CEO power measures, and/or industry competition. The evidence provides no support for the Managerial Power View argument that firms use disclosure policies to hide and/or camouflage

relevant pension plan characteristics and excess pension benefits. Finally, in untabulated analyses I find no evidence that the provisions of lump sum payouts and plan protections are associated with CEO power and/or excess pension benefits.

5.5. Determinants of Bias

Although I find in Section 5.1 that bias is on average economically insignificant, bias may vary systematically with excess pension benefits and/or CEO power. To investigate this possibility, Table 7 presents two OLS models estimated on firms in the proprietary sample that provide but do not disclose lump sum payouts.

The dependent variable in the first regression is the dollar value of the bias in pension estimates based on public disclosures and in the second regression it is the percentage of bias. The independent variables include measures of excess pension benefits, industry competition, and CEO power. The excess pension measure is the same as that used in section 5.4. I include a measure of industry competition to control for proprietary costs of disclosure. *Ln(ASSETS)* and *CEO AGE* are also included to control for size and age effects. The specification for both regressions is as follows:

$$BIAS_{it} = \alpha + \beta_1 Ln(ASSETS)_{it} + \beta_2 CEO\ AGE_{it} + \beta_3 GINDEX_{it} + \beta_4 BLOCKHOLDERS_{it} + \beta_5 CHAIR_{it} + \beta_6 BOARD\ SIZE_{it} + \beta_7 INSIDE\ DIRECTORS_{it} + \beta_8 DIRECTOR\ AGE_{it} + \beta_9 INTERLOCKS_{it} + \beta_{10} COMPETITION_{it} + \varepsilon_{it}$$

The small sample size of 50 observations limits the power of the two regressions.[12] The Adjusted R^2s and p values are 0.13 and 0.12 for the dollar bias, and -0.02 and 0.59 for percent bias.

[12] The sample size is less than the 61 firms presented in Table 3 Panel B because governance variables are missing for nine firms. In addition, I remove two observations with extreme DFFITS (Belsley et al. 1980).

As predicted by the Managerial Power View, the coefficient on *EXCESS PENSION* in both OLS regressions is negative, but not significant. As predicted by the discretionary disclosure literature, the coefficient on *COMPETITION* is positive in both regressions, but also not significant. Bias using either regression is associated with CEO power, but in a direction opposite to that predicted by the Managerial Power View. The coefficients on *INSIDE DIRECTORS* are positive and significant, implying that a 1.00% increase in inside directors above the industry mean is associated with a $42.8 thousand overestimate of pension benefits. This result is consistent with Singh (2006), who shows analytically that in the presence of director career concerns captured boards are less likely to lower the level of disclosed pay.

OLS measures mean effects. To investigate effects for CEOs with extreme downward bias, I compare, in untabulated univariate analyses, firms in the quartile of highest downward bias to the firms in the remaining quartiles. The only difference between the two groups is that firms in the highest quartile of downward bias have fewer inside directors.

Overall, my results provide no support for the hypothesis that disclosure is used to hide and/or camouflage excess pension benefits— neither discretionary disclosure nor bias is associated with excess pension benefits. Bias is associated with CEO power but in a direction opposite to that predicted by the Managerial Power View—inside directors are associated with disclosure policies that lead to upwardly biased estimates of pension benefits.

6. Summary and Conclusion

I investigate the extent to which the Managerial Power and Optimal Contracting Views of pensions are descriptive of CEO pensions. Specifically, I investigate the extent to which

discretionary disclosures are associated with excess pension benefits, and the relation between pensions and CEO power and/or contracting determinants. I also examine whether pensions are associated with excess total compensation.

My results provide some support for both the Managerial Power and Optimal Contracting Views. Economic contracting variables, however, appear to explain the cross-sectional variation in pension benefit levels to a greater extent than CEO power measures. Although pension benefit levels are associated with CEO power measures, the direction of coefficients is often opposite to that predicted by the Managerial Power View. Finally, neither CEO power measures nor excess pension benefits are associated with discretionary pension disclosures.

Overall, this evidence suggests that pensions may be used for rent extraction in some cases, but the practice appears to be limited. In addition, my disclosure results suggest that rent extraction can be detected using public disclosures, implying that recent SEC changes in pension disclosure requirements are likely to have little effect on investors' ability to value pensions.

The results of this study must be interpreted in light of endogeneity. Disclosures, pensions, compensation, and equity incentives represent choices of both the CEO and the board of directors. In addition, empirical proxies used in this study are undoubtedly measured with error. Therefore, estimates can suffer from endogeneity biases that affect inferences.

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Appendix A
Prior SEC Disclosure Requirements

1. (f) *Defined Benefit or Actuarial Plan Disclosure.*

(1) *Pension Plan Table.*

(i) For any defined benefit or actuarial plan under which benefits are determined primarily by final compensation (or average final compensation) and years of service, provide a separate Pension Plan Table showing estimated annual benefits payable upon retirement (including amounts attributable to any defined benefit supplementary or excess pension award plans) in specified compensation and years of service classifications in the format specified below

PENSION PLAN TABLE

	Years of Service				
Remuneration	15	20	25	30	35
125,000					
150,000					
175,000					
200,000					
225,000					
250,000					
300,000					
400,000					
450,000					
500,000					

(ii) Immediately following the Table, the registrant shall disclose:

(A) The compensation covered by the plan(s), including the relationship of such covered compensation to the annual compensation reported in the Summary Compensation Table required by paragraph (b)(2)(iii) of this item, and state the current compensation covered by the plan for any named executive officer

whose covered compensation differs substantially (by more than 10%) from that set forth in the annual compensation columns of the Summary Compensation Table;

(B) The estimated credited years of service for each of the named executive officers; and

(C) A statement as to the basis upon which benefits are computed (e.g., straight-life annuity amounts), and whether or not the benefits listed in the Pension Plan Table are subject to any deduction for Social Security or other offset amounts.

(2) *Alternative Pension Plan Disclosure.* For any defined benefit or actuarial plan under which benefits are not determined primarily by final compensation (or average final compensation) and years of service, the registrant shall state in narrative form:

(i) The formula by which benefits are determined; and

(ii) The estimated annual benefits payable upon retirement at normal retirement age for each of the named executive officers.

Instructions to Item 402(f).

1. *Pension Levels.* Compensation set forth in the Pension Plan Table pursuant to paragraph (f)(1)(i) of this item shall allow for reasonable increases in existing compensation levels; alternatively, registrants may present as the highest compensation level in the Pension Plan Table an amount equal to 120% of the amount of covered compensation of the most highly compensated individual named in the Summary Compensation Table required by paragraph (b)(2) of this item.
2. *Normal Retirement Age.* The term "normal retirement age" means normal retirement age as defined in a pension or similar plan or, if not defined therein, the earliest time at which a participant may retire without any benefit reduction due to age.

Appendix B
New SEC Disclosure Requirements

The following changes will be required for the Summary Compensation Table:

> A column reporting the annual change in the actuarial present value of accumulated pension benefits and above-market or preferential earnings on nonqualified deferred compensation, so that these amounts can be deducted from total compensation for purposes of determining the named executive officers;

The following changes will be required for the Retirement Plan section:

> The Pension Benefits Table, which will require disclosure of the actuarial present value of each named executive officer's accumulated benefit under each pension plan, computed using the same assumptions (except for the normal retirement age) and measurement period as used for financial reporting purposes under generally accepted accounting principles;

Table 1

Descriptive Statistics for the Proprietary Sample

	Mean	Std. Dev.	Q1	Median	Q3
CEO AGE	57.21	6.09	53.00	58.00	61.00
Ln(ASSETS)	9.30	1.59	8.11	9.34	10.32
COMPETITION	0.30	0.27	0.09	0.24	0.44
Investment Opportunities:					
BOOK TO MARKET	0.71	0.21	0.58	0.74	0.89
R&D	0.02	0.04	0.00	0.00	0.02
PP&E	0.28	0.22	0.12	0.24	0.41
IDIOSYNCRATIC RISK	-1.28	0.38	-1.54	-1.35	-1.05
Asset Substitution:					
LEVERAGE	0.29	0.17	0.19	0.27	0.38
AAA/AA	0.02	0.13	0.00	0.00	0.00
A	0.35	0.48	0.00	0.00	1.00
BBB	0.37	0.48	0.00	0.00	1.00
JUNK	0.14	0.35	0.00	0.00	0.00
CEO Power:					
GINDEX	10.23	2.43	9.00	10.00	12.00
BLOCKHOLDERS	1.89	1.48	1.00	2.00	3.00
CHAIR	0.81	0.39	1.00	1.00	1.00
BOARD SIZE	2.38	0.24	2.20	2.40	2.48
INSIDE DIRECTORS	0.23	0.12	0.13	0.20	0.29
DIRECTOR AGE	59.99	2.44	58.23	60.10	61.86
INTERLOCKS	0.08	0.29	0.00	0.00	0.00
N	172				

This table presents descriptive statistics for the proprietary sample. I measure all variables as of fiscal year end 2003. CEO AGE is the CEO's age as of fiscal year end. Ln(ASSETS) is the natural logarithm of total assets (DATA6). BOOK TO MARKET is the ratio of the book value of assets to the market value of assets (DATA6/(DATA199*DATA25+DATA181)). R&D is the ratio of research and development expenditures to total assets (DATA46/DATA6). PP&E is the ratio of net property, plant, and equipment to total assets (DATA8/DATA6). IDIOSYNCRATIC RISK is the log of the standard deviation of the residuals from a market model estimated over the preceding 24 months. COMPETITION is the Herfindahl-Hirschman Index for the firm's industry (six digit NAICS). LEVERAGE is the ratio of long and short term debt to the book value of total assets ((DATA9+DATA34)/DATA6). AAA/AA, A, BBB, and JUNK are indicator variables for the firm's S&P Long Term Debt Rating (SPDRC). GINDEX is the firm's G Score, which is the simple sum of the firm's anti-takeover protections (Gompers et al. 2003). BLOCKHOLDERS is the number of institutional investors that hold 5% or more of the firm's common shares outstanding. CHAIR is an indicator for whether the CEO chairs the board. BOARD SIZE is the natural logarithm of the number of directors on the board. INSIDE DIRECTORS is the percent of directors who are insiders. DIRECTOR AGE is the mean director age. INTERLOCKS is the number of director interlocks.

Table 2

Descriptive Statistics for the S&P 500 Sample

	Mean	Std. Dev.	Q1	Median	Q3
CEO AGE	55.67	6.90	51.00	56.00	60.00
Ln(ASSETS)	9.43	1.40	8.35	9.28	10.29
RETURNS	0.17	0.33	-0.01	0.12	0.29
ROA	0.06	0.07	0.02	0.05	0.10
Investment Opportunities:					
BOOK TO MARKET	0.61	0.23	0.42	0.62	0.82
R&D	0.02	0.04	0.00	0.00	0.03
PP&E	0.24	0.22	0.07	0.17	0.37
IDIOSYNCRATIC RISK	-1.48	0.41	-1.78	-1.52	-1.24
Asset Substitution:					
LEVERAGE	0.23	0.17	0.11	0.21	0.31
AAA/AA	0.08	0.27	0.00	0.00	0.00
A	0.33	0.47	0.00	0.00	1.00
BBB	0.35	0.48	0.00	0.00	1.00
JUNK	0.03	0.18	0.00	0.00	0.00
CEO Power:					
GINDEX	9.73	2.50	8.00	10.00	11.00
BLOCKHOLDERS	1.72	1.37	1.00	2.00	3.00
CHAIR	0.65	0.48	0.00	1.00	1.00
BOARD SIZE	2.35	0.26	2.20	2.40	2.48
INSIDE DIRECTORS	0.28	0.15	0.17	0.25	0.38
DIRECTOR AGE	59.79	3.11	57.89	59.83	61.82
INTERLOCKS	0.06	0.27	0.00	0.00	0.00

This table presents descriptive statistics for the S&P 500 sample, which includes firms that are in the Index for fiscal 2004 and/or 2005. RETURNS is the annual stock return. ROA is the return on assets (DATA18/DATA6). Table 1 provides definitions of the remaining variables.

Table 3

Descriptive Statistics for Disclosure and Bias

Panel A: Lump Sum Payouts and Protections

	Lump Sum		Protection	
	Provide	Disclose	Provide	Disclose
Number of Firms	99	38	62	6
Percentage of Firms (%)	58	38	36	10
N	172	99	172	62

Panel B: Bias

	Bias	
	$ in 000s	%
Mean	-593.96	-7.50
Standard Deviation	1,307.09	13.60
Minimum	-3,461.53	-29.32
Q1	-1,315.62	-18.66
Median	-490.57	-8.53
Q3	-156.87	-2.14
Maximum	4,181.76	37.98
N	61	61

This table presents the disclosure of plan options and bias in estimates of pension benefits based on public disclosures for the proprietary sample. Panel A presents tabulations of how many firms provide lump sum payouts and protections (Rabbi and Secular trusts) and, conditional on provision, how many firms disclose in proxy statements. Panel B presents the distribution of bias. For firms that provide lump sum payouts but do not disclose in public filings, I calculate bias as the difference between an estimate based on public disclosures and the value of pension benefits based on actual plan details. The top of the table presents the distribution of bias as both the dollar difference and the dollar difference deflated by the actual plan value. Negative values represent the extent to which estimates based on public disclosures are downwardly biased.

Table 4

Analyses of Pension Benefit Levels

Panel A: Distribution of Pension Benefits ($ in 000s)

	N	Mean	Std. Dev.	Q1	Median	Q3	95th Pct.	99th Pct.
Fiscal Year End 2004	520	3,289.61	6,146.29	0.00	859.97	3,876.73	14,685.91	23,572.51
Fiscal Year End 2005	490	4,344.02	8,806.29	0.00	968.85	5,059.18	19,577.52	32,870.32

Panel B: Determinants of Pension Benefits

	Pred. Sign	Tobit	Probit	Truncated	Tobit	Probit	Truncated
Ln(ASSETS)	+	0.00	-0.02	0.34***	-0.15	-0.04	0.30***
CEO AGE	+	0.09**	0.00	0.14***	0.02	-0.01	0.12***
Investment Opportunities:							
BOOK TO MARKET	+	3.76***	0.44***	-1.25***	3.69***	0.45***	-1.14***
R&D	-	-4.84	0.05	-3.77	-9.02	-0.31	-4.32*
PP&E	+	3.44***	0.31**	0.68**	2.68**	0.24*	0.66**
IDIOSYNCRATIC RISK	-	-3.49***	-0.34***	-0.02	-2.82***	-0.28***	0.02
Asset Substitution:							
LEVERAGE	+	2.22	0.14	0.19	2.60	0.21	0.18
AAA/AA	+	4.15***	0.24**	0.04	3.49***	0.21**	0.05
A	+	3.29***	0.24***	0.00	2.56***	0.19***	0.02
BBB	+	1.26	0.08	-0.25	0.53	0.03	-0.28
JUNK	+	1.92	0.13	-0.47	1.23	0.09	-0.45
CEO Power:							
GINDEX	+				0.09	0.01	-0.03
BLOCKHOLDERS	-				-0.03	-0.01	0.00
CHAIR	+				2.32***	0.22***	0.46***
BOARD SIZE	+				2.60**	0.26**	-0.01
INSIDE DIRECTORS	+				-7.24***	-0.65***	-0.75*
DIRECTOR AGE	+				0.13	0.01	0.01
INTERLOCKS	+				0.50	0.09	-0.08
N		833	833	552	833	833	552
Pseudo R^2		0.25	0.18	0.43	0.33	0.25	0.45
Correctly Classified (%)			75.51			76.59	

***, **, * Significantly different from zero at the 1%, 5%, and 10% level (two-tailed test)

Table 4 (continued)
Level of Pension Benefits

Panel C: 95th Percentile of Pension Benefits (Means for fiscal 2004)

	95th Percentile	Full S&P 500	Pension S&P 500
GINDEX	0.62	0.60	0.98
BLOCKHOLDERS	-0.28	0.35**	0.29**
CHAIR	0.92	0.64**	0.72**
BOARD SIZE	0.17	0.13	0.16
INSIDE DIRECTORS	-0.08	-0.02*	-0.05
DIRECTOR AGE	1.64	0.26**	0.40**
INTERLOCKS	0.02	0.01	0.02

***, **, * Significantly different from the 95th Percentile at the 1%, 5%, and 10% level (two-tailed test)

This table presents analyses of the level of pension benefits for S&P 500 CEOs in fiscal years 2004 and 2005. Panel A presents the distribution of the present value of their accrued pension benefits. Panel B presents investigates the determinants of pension benefits. The dependent variable in the Tobit and Truncated Regression models is the natural logarithm of one plus the present value of accrued pension benefits. The dependent variable in the Probit model is a binary variable coded as one if the CEO receives pension benefits, and zero otherwise. I cluster standard errors in all models at the CEO level to account for multiple observations on the same CEO. I report coefficients for the Tobit models, marginal probabilities for the Probit models, and marginal effects for the Truncated Regression models. I calculate the Pseudo R^2s for the Tobit and Truncated Regression models as the square of the Pearson correlation between the dependent variable and predicted value. I report McFadden Pseudo R^2s for the Probit models. I industry adjust the following variables: GINDEX, BLOCKHOLDERS, BOARD SIZE, INSIDE DIRECTORS, DIRECTOR AGE, and INTERLOCKS. Table 1 provides definitions of the independent variables. Panel C compares the 95th percentile of pension benefits for fiscal 2004 to firms in the S&P 500 and to those firms in the S&P 500 that provide pension benefits. I report industry adjusted means for the CEO power measures except for CHAIR.

Table 5

Regressions of the Annual Accrual of Pension Benefits and Excess Compensation

	Pred. Sign	OLS	
INTERCEPT		-6,651.88***	-6,039.66***
Ln(ASSETS)	+	330.97***	266.20***
CEO AGE	+	56.22***	52.54***
RETURNS	+	476.92	655.23*
ROA	+	1,948.41	2,163.02
Investment Opportunities:			
BOOK TO MARKET	+	517.72	807.91
R&D	-	1,107.52	434.05
PP&E	+	1,414.30***	1,374.93***
IDIOSYNCRATIC RISK	-	-343.79	-266.83
Asset Substitution:			
LEVERAGE	+	-2,421.78***	-2,158.97***
AAA/AA	+	1,417.13***	1,187.03**
A	+	532.93	313.63
BBB	+	84.55	-89.44
JUNK	+	11.65	-200.37
CEO Power:			
GINDEX	+		-6.96
BLOCKHOLDERS	-		-124.15
BOARD SIZE	+		1,239.21**
INSIDE DIRECTORS	+		-1,936.61**
DIRECTOR AGE	+		-34.25
INTERLOCKS	+		-108.67
EXCESS COMPENSATION	+	0.16**	0.23**
N		386	386
Adj. R^2		0.22	0.24

***, **, * Significantly different from zero at the 1%, 5%, and 10% level (two-tailed test)

This table presents estimates of the association between pensions and excess compensation. The explanatory variable EXCESS COMPENSATION is that portion of compensation that is associated with measures of CEO Power. I estimate a first stage regression in which the dependent variable is total compensation (excluding pension benefits) and the independent variables include contracting determinants of compensation and CEO Power measures. I calculate EXCESS COMPENSATION as the linear combination of the estimated coefficients from the first stage and the CEO Power measures:

$$EXCESS\ COMPENSATION_i = \sum \hat{\delta}_i\ CEO\ POWER\ MEASURES_i$$

I industry adjust the following variables: GINDEX, BLOCKHOLDERS, BOARD SIZE, INSIDE DIRECTORS, DIRECTOR AGE, and INTERLOCKS. I drop CHAIR because it is highly correlated (0.75) with EXCESS COMPENSATION. Tables 1 and 2 provide definitions of the independent variables.

Table 6

Regressions of Plan Disclosures

		Logit	
	Pred. Sign	Lump Sum	Protection
INTERCEPT		-2.44**	-1.38
CEO Power:			
GINDEX	+/-	0.16	0.44
BLOCKHOLDERS	+/-	0.09	0.10
CHAIR	+/-	1.17	-1.43
BOARD SIZE	+/-	-0.77	2.19
INSIDE DIRECTORS	+/-	-1.86	3.25
DIRECTOR AGE	+/-	0.06	-0.29
INTERLOCKS	+/-	0.56	1.17
EXCESS PENSION	-	0.05	0.00
COMPETITION	+	1.14	-2.63
N		77	43
Pseudo R^2		0.08	0.27
p Value		0.60	0.50
Correctly Classified (%)		67.53	90.70

***, **, * Significantly different from zero at the 1%, 5%, and 10% level (two-tailed test)

This table presents analyses of the determinants Lump Sum payout and Protection (Rabbi and Secular trusts) disclosures for the proprietary sample. The dependent variable for the Lump Sum logistic regression is an indicator variable for whether conditional on providing a lump sum payout option the firm discloses in its proxy statement. The dependent variable for the Protection logistic regression is an indicator variable for whether conditional on protecting the plan the firm discloses in its proxy statement. EXCESS PENSION is the residual from a pension benchmark model based on the specifications used in Table 4. I include contracting determinants in the pension benchmark model and estimate the benchmark model on the entire proprietary sample. I industry adjust the following variables: GINDEX, BLOCKHOLDERS, BOARD SIZE, INSIDE DIRECTORS, DIRECTOR AGE, and INTERLOCKS. Table 1 provides definitions of the remaining variables.

Table 7

Regressions of Bias on CEO Power and Excess Pension Benefits

		OLS	
	Pred. Sign	$ in 000s	%
INTERCEPT		-1,182.42	-0.325
Ln(ASSETS)		-70.00	0.010
CEO AGE		21.47	0.002
CEO Power:			
GINDEX	+/-	-6.91	0.001
BLOCKHOLDERS	+/-	169.63	0.002
CHAIR	+/-	-136.28	0.008
INSIDE DIRECTORS	+/-	4,279.68***	0.388**
BOARD SIZE	+/-	1,040.30	0.090
DIRECTOR AGE	+/-	18.89	-0.001
INTERLOCKS	+/-	-251.97	0.001
EXCESS PENSION	-	-0.04	-0.015
COMPETITION	+	5.30	0.066
N		50	50
Adj. R^2		0.13	-0.03
p Value		0.12	0.59

***, **, * Significantly different from zero at the 1%, 5%, and 10% level, respectively (two-tailed test)

This table presents analyses of the determinants of bias in estimates of pension benefits based on public disclosures. The bottom of the table presents two OLS regressions that investigate the determinants of bias. I drop two outliers with extreme DFFITS (Belsley et al. 1980). EXCESS PENSION is the residual from a pension benchmark model based on the specifications used in Table 4. I include contracting determinants and CEO power measures in the pension benchmark model and estimate it on the entire proprietary sample. I industry adjust the following variables: GINDEX, BLOCKHOLDERS, BOARD SIZE, INSIDE DIRECTORS, DIRECTOR AGE, and INTERLOCKS. Tables 1 and 2 provide definitions of the independent variables.