THE JOURNAL OF FINANCE • VOL. LIX, NO. 3 • JUNE 2004

Executive Option Repricing, Incentives, and Retention

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ABSTRACT

While many firms grant executive stock options that can be repriced, other firms systematically restrict or prohibit repricing. This article investigates the determinants of firms' repricing policies and the consequences of such policies for executive turnover and retention. Firms that have better internal governance, that use more powerful stock-based incentives, or that face less shareholder scrutiny are more likely to maintain repricing flexibility. Firms that restrict repricing are more vulnerable to voluntary executive turnover following stock price declines. When share price declines are severe, restricting firms appear to award unusually large numbers of new options.

THE PAST SEVERAL YEARS have witnessed tremendous growth in the use of stock options to compensate corporate executives. Indeed, virtually all of the largest publicly traded U.S. firms now rely on stock option plans, and option grants constitute more than half of the annual pay for chief executive officers (Murphy (1999)). A natural consequence of this growth has been an increasing awareness and sophistication among academics, practitioners, and the popular press about how the design and administration of option plans can help to enhance or destroy shareholder value.

Although a number of corporate practices pertaining to executive options have elicited controversy, perhaps no such practice has been more controversial than "repricing," which involves effectively lowering the exercise prices of previously granted options. On the one hand, firms often describe repricing as a useful means for restoring incentives and retaining executive talent, and most stock option plans currently in existence permit repricing. On the other hand, shareholders and institutional investors have voiced intense opposition to the practice on the grounds that it apparently rewards managers for poor performance. For instance, the Council of Institutional Investors, an organization of pension funds controlling over $1.5 trillion in assets, has adopted a policy statement calling on companies to restrict repricing. According to Ann Yerger, Director of Research at the Council, member funds "generally detest

*Mark A. Chen is with the University of Maryland. I appreciate the comments and suggestions of Brian Hall, Jonathan Karpoff, Rafael La Porta, Gordon Phillips, N. R. Prabhala, Andrei Shleifer, and seminar participants at Harvard University, Southern Methodist University, the University of Illinois at Urbana-Champaign, the University of Maryland, and the 2001 Financial Management Association meetings. I also thank an anonymous referee and Rick Green (the editor) for helpful comments that substantially improved the paper. Any remaining errors are my own.

[repricing] and consider it antithetical to the whole concept of incentive compensation" (*The Wall Street Journal*, April 8, 1999, p. R6).

Yet despite the vigorous debate over the merits of repricing, little is known about why some firms systematically restrict repricing, why other firms maintain repricing flexibility, and what are the ramifications of such choices. In this study, I present evidence on explicit corporate policies that govern the repriceability of executive stock options. Using proxy statement information to ascertain which firms precommit ex ante to restrict repricing and which firms do not, I am able to investigate both the determinants and consequences of this important aspect of stock option design.

Previous empirical studies have examined repricing events and the characteristics of repricing firms (see, for example, Gilson and Vetsuypens (1993), Saly (1994), Brenner, Sundaram, and Yermack (2000), Chance, Kumar, and Todd (2000), Carter and Lynch (2001), and Chidambaran and Prabhala (2003)). These studies provide valuable evidence as to why firms might choose to reprice in the aftermath of stock price declines. By design, however, these analyses only deal with ex post decisions made after poor stock price performance, and thus they cannot explain how firms select ex ante repricing policies. The present study contributes to an understanding of repricing—and, more generally, to an understanding of corporate governance and executive compensation design—by uncovering evidence on ex ante choices that ultimately constrain and shape ex post repricing behavior.

Theoretical work suggests that a number of economic costs and benefits should play a role in shaping firms' repricing policies. For example, Acharya, John, and Sundaram (2000) develop an agency theoretic model to explore the tradeoffs inherent in a firm's choice of policy. Their model shows that a no-repricing policy can be costly in terms of limiting future contracting flexibility; but at the same time it can induce higher managerial effort by removing managers' downside protection. The Acharya, John, and Sundaram model also implies that the optimal repricing policy will depend on the quality of internal control mechanisms. A manager who wields power over the board of directors or compensation committee may be able to use repricings to increase the value of his or her pay even if such repricings are detrimental to shareholders. Thus, the larger the scope for self-dealing within a firm, the more valuable it will be to precommit to a no-repricing policy.

My empirical analysis uses a sample of firms from 1994 through 1998 to investigate the factors that drive firms' choice of repricing policy. Since repricings are decisions made by the board of directors that directly impact the nature of managerial incentives, I expect the most important determining factors to be firm-specific characteristics related to managerial compensation, internal governance mechanisms, and the degree of monitoring provided by external shareholders.

The analysis indicates that repricing policies are systematically related to all three types of firm characteristics. First, firms that have lower levels of managerial shareownership or more underwater options are more likely to restrict repricing. This is consistent with the view that no-repricing precommitments

can benefit firms, especially those with weak managerial incentives, by removing managers' downside protection. Second, restrictions are more likely to occur when the CEO serves as chairman of the board or when nonemployee board members do not hold large share stakes. These findings, which are complemented by results from multivariate analysis of abnormal share price reactions, suggest that flexible repricing policies are costlier for poorly governed firms because such policies open the door for managerial self-dealing. And third, the likelihood of a restriction is increasing in past repricing activity and in the extent of unaffiliated blockholder ownership, suggesting that firms are swayed in their choice of policy by pressure and scrutiny from external shareholders.

I also examine the consequences of repricing policy for senior executive officer turnover. Although firms often state that repricing is an important tool for retaining executive talent, to date there has been little or no direct empirical investigation of this claim. My focus on ex ante repricing policies allows me to study how these policies affect the link between poor stock price performance and voluntary executive departures. The evidence indicates that, relative to firms with flexible policies, firms with restrictive policies experience a higher degree of executive turnover in response to stock price declines. Furthermore, repricing policy affects the sensitivity of turnover to stock price movements most significantly for non-CEO senior executives (i.e., those executives for which retention considerations should be most important). Thus, the evidence indicates that repricing can be a powerful retention device and that this benefit should figure prominently into the optimal choice of repricing policy.

Finally, I investigate whether repricing policy affects how firms respond to large ex post stock price declines. If repricing restrictions are difficult to reverse, then restricting firms might attempt to buffer the impact of negative stock returns with "surrogate" repricings, that is, sizable packages of new equity-based compensation. I find that restricting firms with poor stock performance do in fact grant unusually large numbers of options and restricted shares compared to benchmark, nonrestricting firms that experience similar stock price declines.

The rest of the paper proceeds as follows. Section I discusses the potential costs and benefits of repricing and develops the main hypotheses to be tested. Section II describes the data and sample selection procedure. In Section III, the cross-sectional determinants of firms' ex ante repricing policies are studied. Section IV examines the consequences of repricing policy for senior executive turnover and retention. Section V presents some evidence on how repricing policies affect option granting behavior in the aftermath of large stock price declines. Section VI provides a brief summary and conclusion.

I. Costs and Benefits of Repricing

One benefit of repricing emerges from a feature inherent to executive stock options. Because executive stock options are almost always granted with exercise price equal to the current stock price, the sensitivities of option values to share price movements can change substantially over time. As a result,

managerial incentives to increase shareholder value can also vary over time. When, for example, executive options are deeply in-the-money, option values move approximately one-for-one with stock prices, and managerial incentives are strong. But when stock price declines push options substantially underwater, option values become insensitive to stock price changes, and therefore incentives are weak. In such cases, lowering options' exercise prices may reinstate the power of managers' option-based incentives.[1]

Although repricing can in some instances provide a boost to managerial incentives, the very anticipation of repricing can actually *weaken* incentives. Intuitively, this effect arises from the fact that repricing removes the penalty associated with poor stock performance, and thus managers who hold repriceable options are less motivated ex ante to maintain a high stock price.[2] Within an option-pricing framework, Johnson and Tian (2000) demonstrate that whether or not options are repriceable can affect one measure of incentive intensity, namely, the option delta. Specifically, the authors show that, under some simplifying assumptions about when repricings occur, repriceable options exhibit uniformly lower deltas than do non-repriceable options.

Acharya et al. (2000) employ an agency-theoretic model of compensation contracting to study the incentive effects of repricing policy. In their model, a firm chooses an initial policy that specifies whether or not the manager's options can be repriced in future contingencies. The model implies that a no-repricing precommitment can shift managerial effort provision to a more efficient level, but at the same time such a policy can be costly because it limits the firm's ability to restore managerial incentives in some contingencies. In equilibrium, the firm's repricing policy will be chosen to optimally trade off these two opposing incentive effects.

On the basis of such considerations, one can expect the choice of repricing policy to depend on the nature of managerial incentives in two ways. First, if managerial share and option holdings are large, then incentives are strong, and hence the additional incentive benefits from a no-repricing precommitment are small. Second, if managerial shareholdings are large, then managers have a roughly linear payoff scheme that is robust to stock price declines, and so firms benefit little from being able to reset stock options. Which of these two effects dominates in practice is an empirical issue.

Apart from its effects on managerial incentives, repricing flexibility could be costly to a firm because self-interested managers could use repricings to enrich themselves at shareholders' expense. Since executive compensation decisions are legally deemed ordinary business matters, the administration of an option plan, including the granting, cancellation, and repricing of options, is

[1] Saly (1994) and Acharya et al. (2000) demonstrate this effect formally in models where managers' option-based compensation contracts are optimally chosen to induce value-maximizing actions.

[2] This argument forms the basis for much of the criticism of repricing put forth by shareholders and professional money managers. For example, Eric Roiter, general counsel for Fidelity Management & Research Co., states, "If the company doesn't fare well, it completely undermines the purpose of an option plan to simply change the rules" (Simon and Dugan (2001)).

handled by the board of directors on behalf of shareholders. As Jensen (1993) and others have argued, when executive officers wield power over their firm's board of directors or compensation committee, they may be able to obtain higher levels of pay—and on more favorable terms—than if compensation contracts were designed to maximize shareholder value.[3] This implies that firms with weak internal governance may be forced to bear the costs of unnecessary and value-reducing repricings unless they precommit to a no-repricing policy.

Empirical studies have found mixed evidence on whether repricing represents managerial self-dealing. Carter and Lynch (2001) find no evidence that the structure or composition of the board of directors is associated with a higher likelihood of repricing, and Chidambaran and Prabhala (2002) find that smaller boards, which may be associated with better internal governance, are more inclined to reprice. On the other hand, Brenner et al. (2000) document that firms are more apt to reprice when executive officers are present on the firm's compensation committee. In a similar vein, Chance et al. (2000) find that greater insider presence on the board of directors increases the likelihood of repricing.

Repricing could also function as a tool for the *retention* of executive officers. Indeed, firms often argue that retention is the key reason why they repriced.[4] The basis for this view is the fact that executives typically hold many options that are unvested. Since these unvested options are forfeited upon leaving the firm voluntarily, they serve as "golden handcuffs" that encourage executives to stay with their current firm (Scholes (1991), Mehran and Yermack (1997)). However, stock price declines can push unvested options underwater, reducing or eliminating the options' retentive power. For a senior executive officer who holds many underwater options at a non-repricing firm, the prospect of obtaining a new compensation package from a competing firm may be a compelling reason to depart.

In view of the costs associated with sudden executive departures (e.g., halted projects, foregone sales, or the loss of trade secrets), many firms will choose in practice to maintain repricing flexibility. At same time, some firms will switch to restrictive policies to minimize the costs of repricing, and these firms should experience higher levels of executive turnover subsequent to poor stock price performance. In Section IV, I provide evidence on this issue by examining

[3] Recent work has uncovered evidence that managers may be able to opportunistically influence the timing of option grants (see Yermack (1997) and Chauvin and Shenoy (2001)) and to increase the overall level of their compensation (see, e.g., Borokhovich, Brunarski, and Parrino (1997), Bertrand and Mullainathan (1999), Core, Holthausen, and Larcker (1999), and Hallock (1997)).

[4] For instance, the proxy statement filed by Adobe Systems, Inc. in 1999 offers the following rationale (p. 18) for the compensation committee's decision to reprice on September 23, 1998: "The Committee was advised by management that management believed that employee and executive turnover was likely to increase. In large part, this increase was expected because the Company's total compensation package for long-term employees, which included substantial options with exercise prices well above the then-current trading price, no longer provided an effective retention incentive . . . ."

how repricing policy affects the sensitivity of executive turnover to share price movements.[5]

Even when repricing flexibility is advantageous for reasons related to managerial incentives or retention, firms may choose to restrict repricing if they face substantial pressure from external shareholders. Recently, shareholders and shareholder groups such as the California Pension Retirement System (CalPERS), the State of Wisconsin Investment Board, and the Council of Institutional Investors have demonstrated increased concern with compensation issues in general, and repricing in particular. Through a combination of voting power, shareholder proxy proposals, and high-profile targeting via annual "focus" lists, such investors have often spurred changes in firms' governance and compensation practices.[6] Therefore, I expect that a firm will be more inclined to restrict repricing when external shareholders have a substantial presence and when the firm faces a high degree of shareholder scrutiny over its past compensation practices.

Of course, the above discussion notwithstanding, repricing policy is irrelevant if firms can perfectly substitute for repricings by awarding more options while leaving old options intact. But awarding additional options in lieu of repricing is likely only an imperfect substitute. Consider, for example, a firm with many underwater executive options that provide virtually no retentive or incentive power. While granting additional options could certainly strengthen incentives and retention, the underwater options could have long maturities and non-negligible probabilities of ultimately being exercised, and hence shareholders would view the surrogate repricing as costlier than a straightforward repricing.[7]

II. Data

A. Sample

I obtain information on repricing restrictions from corporate proxy statements filed with the Securities and Exchange Commission (SEC) and from supplemental proxy materials. I employ three databases—*Edgar Online, LexisNexis*, and *Disclosure Global Access*—to construct a sample of firms with

[5] Although direct evidence on the relation between repricing and executive retention has been lacking, Carter and Lynch (2001) and Chidambaran and Prabhala (2003) provide indirect evidence that suggests repricing is used for retention. Specifically, the authors document that young firms within high-technology industries (i.e., firms which typically operate in tight managerial labor markets) are more likely to reprice than are firms in other industries.

[6] Studies that examine the effects of institutional shareholder activism on governance practices and financial performance include Opler and Sokobin (1997), Karpoff, Malatesta, and Walkling (1996), Smith (1996), Strickland, Wiles, and Zenner (1996), Wahal (1996), Del Guercio and Hawkins (1999), and Gillan and Starks (2000).

[7] Note that underwater options can be quite costly to shareholders even if they are virtually worthless to managers. Indeed, Hall and Murphy (2000) show that the certainty-equivalent value of an executive option to a risk-averse, underdiversified manager is considerably lower than the cost of the option to risk-neutral shareholders, especially if the option is out-of-the-money. Lambert, Larcker, and Verrecchia (1991) argue more generally that the certainty-equivalent value of a compensation portfolio to a risk-averse manager is typically less than the expense to risk-neutral shareholders.

restrictive repricing policies. As a first step in the sample construction, keyword searches are used to identify all available references to the restriction of option repricing from 1994 through 1998.[8] This time period is chosen for two reasons. First, the SEC did not begin to mandate electronic filing via its EDGAR system until 1994, and so electronic coverage of proxy filings prior to that year is sparse. Second, new accounting treatment for repriced options came into effect on December 15, 1998, potentially changing the economic implications of repricing.[9] Of the restrictions identified by the keyword search, I retain only those that are incorporated explicitly into firms' stock option plans. In most cases, restrictions are put into place as the result of company-sponsored proxy proposals that are invariably adopted by shareholders.[10] However, some restrictions are not mentioned in proxy statements but instead appear in supplemental proxy documents such as notices of special shareholder meetings or correspondence between management and institutional shareholders. For each of these cases, I examine filings and documents to verify that the firm in question actually had adopted or was about to adopt the restriction into a stock option plan. The above search procedure results in an initial sample of 168 instances in which a repricing restriction forms part of a firm's stock option plan.

The initial sample is further screened in two ways. First, I study compensation plans and supplemental materials to eliminate duplicate references over the period 1994 to 1998 and to ensure that the restrictions pertain to executives rather than just to nonexecutive employees. This eliminates 51 restrictions from the sample. Second, to determine whether restrictions were present before 1994, proxy statements and compensation plans are studied for each preceding year, backwards in time at least to the initial adoption of the stock option plan and for up to five years when possible. I discard from the sample six firms that already had a repricing restriction in place before 1994. For three additional cases, it is not possible to verify when the restriction was first instituted, and so these firms are excluded. The resulting sample consists of 108 cases from 1994 through 1998 in which a firm adopted a new repricing restriction.

Panels A and B of Table I report frequency distributions of initial repricing restrictions by industry groupings and by calendar year. As Panel A indicates, restrictions are adopted across a diverse set of two-digit SIC industries. Within most of the broad industry groupings, the incidence of restrictions as a percentage of the total sample is roughly comparable to the percentage of 1996

[8] These keyword searches involve logical combinations of terms such as "eliminate," "prohibit," "restrict," and "authority" with terms such as "reprice," "lower," "cancel," and "reset." Due to the multiplicity of combinations used, the search results likely capture all references to repricing restrictions over the 1994–1998 period made by U.S. firms filing with the SEC.

[9] As part of FASB Interpretation No. 44, certain provisions require that repriced options be subject to variable grant accounting. Effectively, this means that companies that have repriced options are obligated to expense to earnings any subsequent stock price appreciation above the new exercise price.

[10] For example, the 1997 proxy statement of Lucent Technologies, Inc. contains the following company-sponsored proposal to change the company's incentive plan for executive officers: "No Option Repricing. Unlike the existing plan, the amended Long Term Plan would effectively prohibit the lowering of the exercise price of an outstanding option" (p. 16).

Table I

Frequency and Duration of Repricing Restrictions

The sample consists of 108 firms that adopted repricing restrictions from 1994 to 1998. Panel A reports the frequencies of restrictions by industry groupings and the percentages of 1996 COMPUSTAT firms belonging to each industry grouping. Panel B displays the frequencies of restrictions by year and reports statistics on the value of firms' total assets at the time of adoption. Panel C tabulates, for each event year between the initial restriction and December 31, 2001, the number of executive option plan changes and number of restrictions dropped. Data are from proxy statements and COMPUSTAT.

Panel A: Distribution of Restrictions by Industry

Industries	Two-Digit SIC Codes	Number of Firms	% of Sample	% of COMPUSTAT Firms in Industries
Agriculture, mining, and construction	0–19	6	5.55	7.30
Food, textiles, and related products	20–25	7	6.48	4.69
Paper products, printing, and publishing	26–27	5	4.63	2.08
Chemicals, petroleum, and coal	28–29	11	10.18	5.25
Rubber, plastic, leather, and metal goods	30–34	11	10.18	4.57
Industrial machinery and equipment	35	11	10.18	5.28
Electronic and transportation equipment, instruments	36–39	13	12.04	13.20
Transportation, communication, and utilities	40–49	10	9.26	8.26
Wholesale and retail trade	50–59	9	8.33	10.26
Finance, insurance, and real estate	60–69	13	12.04	20.52
Business and consumer services	70–79	10	9.26	13.63
Health, legal, and social services; public administration	80–99	2	1.85	4.98

Panel B: Distribution of Restrictions by Year

Year	Number of Firms	Total Assets at End of Previous Fiscal Year ($ Millions)			
		Mean	Median	Min.	Max.
1994	4	4,246.05	4,105.01	134.19	8,640.00
1995	14	16,163.27	1,381.03	64.37	154,917.00
1996	22	5,193.95	983.89	29.46	84,432.00
1997	30	5,353.12	1,208.37	73.53	41,231.40
1998	38	6,969.11	1,215.48	55.22	120,003.50

Panel C: Option-Plan Changes and Number of Restrictions Dropped Per Year through Dec. 31, 2001

Year Relative to Initial Restriction	Firms Amending Existing Plans	Firms Adopting New or Replacement Plans	No. of Restrictions Dropped
Year +1	10	2	0
Year +2	17	10	1
Year +3	15	10	1
Year +4	14	7	0
Year +5 or later	12	8	1

COMPUSTAT firms belonging to the same industry grouping. Panel B shows that, while restricting firms range in size from the very small to the very large, restrictions are in general very rare. However, the steady increase in the adoption rate from 1994 through 1998 suggests that repricing restrictions are a relatively new element of stock option design that may become more prevalent in the future.

Panel C presents some information on the durability of restrictions over time. Out of the 108 adopted restrictions, none was directly revoked by a plan amendment through December 31, 2001, despite the fact that sample firms amended executive option plans during this period on 68 separate occasions. Also, out of 37 new or replacement plans that were adopted by sample firms between the date of the initial restriction and December 31, 2001, only three plans failed to include the restriction that was present in the previous plan. Thus, it appears that once a restriction is put into place, it is not easily reversed.

I construct a control sample of nonrestricting firms on the basis of size, year, and industry. For each firm in the restricting sample, I select the matching firm from COMPUSTAT that has the same four-digit SIC code and that is closest in total asset size at the end of the fiscal year prior to the restriction. I then screen the matching firms with the following procedure. First, matching firms' proxies for the year of the match are studied to ensure that each firm had in place an executive stock option plan. Next, for each matching firm, I review previous years' proxy statements for up to five years and for all years between the initial adoption of the firm's option plan and the year of the match to verify that the firm did not restrict repricing prior to the matching year. This check necessitates dropping two firms with pre-existing restrictions and replacing them with alternate matches having assets next closest in size to the restricting firm. Finally, I check subsequent proxies of the matching firms for three years after the match year to ensure that no subsequent restriction was put into place.

B. Explanatory Variables

To examine the economic determinants of firms' ex ante repricing policies, I gather data on a number of variables that capture the firm-specific costs and benefits of repricing discussed in Section I. The explanatory variables include measures of managerial incentives, internal governance, external shareholder influence, and additional characteristics that could affect firms' need to reprice in the near future. All data are obtained from public sources, and each variable is measured as of the end of the fiscal year preceding adoption of the relevant repricing restriction.

B.1. Managerial Incentives

Stock ownership and stock option holdings play a central role in the provision of managerial performance-based incentives (Jensen and Meckling (1976),

Jensen and Murphy (1990), and Hall and Liebman (1998)). Therefore, I measure the intensity of managerial incentives by the percentage of common shares beneficially owned or, alternatively, by the number of options held as a percentage of outstanding common shares. I collect these data from proxy statements and distinguish between the shareholdings and option holdings of the CEO[11] and those of other "top five" executives.

The intensity of equity-based incentives may also depend on the extent to which outstanding options are in- or out-of-the-money. Whereas the value of a portfolio of deep out-of-the-money options should be relatively insensitive to stock price movements, deep in-the-money options behave approximately like stock with respect to changes in share price, and hence such options can provide strong managerial incentives. I therefore use the average imputed "moneyness" of managers' stock option portfolios as an additional explanatory variable. Following Murphy (1999) and Core and Guay (1999), I first obtain from proxy statements an imputed average strike price by calculating the per-option intrinsic value and subtracting this number from the fiscal year-end stock price. This imputed strike price is then divided by the fiscal year-end stock price to yield a strike-to-price ratio between zero and one.

B.2. Board Characteristics and Internal Governance

To measure the scope for potential managerial self-dealing within the firm, I assemble data from proxy statements on several aspects of firms' internal governance, including characteristics of the CEO and the board of directors. The primary measure of the CEO's influence over the board of directors is whether or not an individual holds the offices of both CEO and chairman of the board. Jensen (1993) and others argue that the duality that arises from the combination of these titles can lead to board decisions that are biased in favor of management. Another factor that may be related to management's power over the board is the CEO's tenure in office: Individuals who serve for long periods of time as the top executive officer may acquire influence through their control over the nomination of board members (Hermalin and Weisbach (1998)). I also use board size and board composition as two indications of directors' monitoring effectiveness. Large boards and boards dominated by insiders may be less willing to openly criticize the opinions of the CEO (see Mace (1986), Weisbach (1988), Lipton and Lorsch (1992), and Yermack (1996)). As a final measure of the effectiveness of board monitoring, I use the presence or absence of at least one nonemployee director who owns more than 5% of common shares. Equity ownership in the hands of nonemployee directors may give those individuals strong incentives to curb managerial self-dealing, especially if the shareholdings are large.

[11] For the purposes of this study, the CEO is defined to be the individual holding the title of Chief Executive Officer if such an individual exists; otherwise, the CEO is defined to be the company President. In the analysis of this section, there are only two instances in which the CEO is President but not Chief Executive Officer.

B.3. The Influence of Shareholder Monitoring and Shareholder Activism

Pressure to restrict repricing may come from institutional investors and large outside shareholders. Not only do such investors typically voice strong opposition to repricings, but they also possess sufficiently large financial interests and voting power to serve as credible monitors of management (Black (1992)). Accordingly, I measure the general level of outside shareholders' influence by (1) the percentage of common shares owned by institutional investors, and (2) the total percentage of common shares held by unaffiliated investors in blocks of 5% or more. I obtain data on these variables from proxy statements, *Compact Disclosure,* and *Value Line Investment Survey*.

I also employ two variables that capture the extent to which shareholder activists, including individuals, pension funds, and coordinated shareholder groups, have used publicity to target firms with poor governance or poor compensation practices. First, I use a binary variable that indicates whether or not a firm received a compensation-related shareholder proxy proposal in the three years preceding the relevant repricing restriction. Shareholder proposals calling for limits or changes to executive compensation have become an increasingly common vehicle for pressuring firms to reform their pay practices (see Del Guercio and Hawkins (1999), Gillan and Starks (2000), Johnson and Shacknell (1997), and Karpoff et al. (1996)). Second, I use press releases to construct a binary variable that equals one if a firm appeared on the annual "focus lists" of either CalPERS (The California Public Employees Retirement System) or the Council of Institutional Investors during the three years preceding a restriction.[12] As shown by Opler and Sokobin (1997) and Smith (1996), the use of these widely publicized lists to target poor performers can bring about both improvements in financial performance and changes in governance practices.

B.4. Compensation Policy and Shareholder Scrutiny

Shareholder scrutiny may be even more intense, and pressure to curb repricing even greater, if a firm has demonstrated a history of awarding excessive or inappropriate compensation. For instance, shareholders may view a past repricing to be a warning flag that a firm's compensation practices are not consistent with shareholder value maximization. I use 10-year option repricing tables contained in proxy statements to construct a binary variable indicating whether or not a firm repriced options for the CEO or for other named executive officers in the three years prior to the relevant restriction.

To obtain an additional, objective measure of excessive compensation, I calculate the residual from an ordinary least squares regression explaining the natural logarithm of one plus annual CEO cash compensation (i.e., salary plus

[12] The United Shareholders Association (USA) also developed a highly publicized annual list—its so-called *Target 50* list—to draw attention to firms with poor financial performance or poor governance. Strickland et al. (1996) document that, on average, the addition of a firm to the *Target 50* resulted in sizable gains accruing to the firm's shareholders. *Target 50* lists are not used in this study because the USA was disbanded in October of 1993.

annual bonus) at restricting and nonrestricting firms. The explanatory variables in this compensation regression include economic variables that previous studies have found to be related to compensation levels: the logarithm of total firm assets; the age and tenure of the CEO; the firm's return on assets over the previous year, net of the median ROA in the same two-digit SIC industry; the firm's stock return over the previous year, net of the median return in the same two-digit SIC industry; and year and industry dummies. The estimation is performed using all available compensation data for up to five years preceding the adoption of a restriction.

B.5. Other Characteristics

Firms may place a high value on repricing flexibility when they are subject to external forces or constraints that could make repricing indispensable in the near future. One factor in particular that may affect a firm's future need to reprice is stock price variability. If a firm's stock price is extremely volatile, then executives who are able and hardworking may nevertheless face a high probability that their options—which will be at-the-money when first granted—will end up substantially underwater. To capture such an effect, I include stock price volatility as an explanatory variable, and I measure it as the annualized standard deviation of CRSP daily stock returns over the fiscal year preceding the year of a repricing restriction.

Finally, repricing could be a way for firms to compensate executives without having to deplete the number of shares authorized for future option grants. A firm that has nearly exhausted the available shares under an option plan, for example, may view a policy of repricing flexibility as being especially valuable. I obtain from annual reports, 10-K filings, and/or proxy statements the total number of shares available for future executive option grants at the end of the fiscal year preceding the year of the restriction.[13] This number is then divided by the total number of common shares outstanding at fiscal year-end to yield a measure of the inventory of shares available for future executive option awards.

III. Determinants of Repricing Policy

A. Summary Statistics and Univariate Comparisons

Table II reports between-sample comparisons of selected firm characteristics relating to size, executive compensation, governance, and financial performance. As the table indicates, firms that choose restrictive policies are quite large, with a median of $1.22 billion in total assets. For control firms, the median value of total assets is $840 million. It is noteworthy that the two samples differ significantly with respect to size even though size was used as a matching

[13] For roughly half of the restricting and control firms, this number is obtained directly from annual reports or 10-K filings. For the rest of the firms, I deduce this number by combining yearly information on the granting, cancellation, and forfeiture of options with information that is disclosed in new option plan proposals.

Table II

Comparisons of Selected Characteristics for Firms Adopting a Repricing Restriction versus Size- and Industry-matched Firms

This table presents means and medians of selected characteristics for up to 108 firm pairs. Each pair includes a firm adopting an executive option repricing restriction during the period 1994 to 1998 and a nonrestricting firm matched by size and industry. Firm characteristics are measured as of the end of the fiscal year preceding each restriction. Ownership levels are expressed in terms of shares held as percentages of common shares outstanding. Unaffiliated blockholders are shareholders who hold 5% or more of common shares and who have no business ties with the firm. The fraction of insiders on the board is the number of inside directors (current employees of the firm) divided by the total number of directors. Stock return volatility is the annualized standard deviation of daily stock returns (excluding dividends) over one year preceding a restriction. All data are from corporate proxy statements, COMPUSTAT, CRSP, *Compact Disclosure*, or *Value Line Investment Survey*. *p*-Values are reported for paired *t*-tests for differences in means and paired Wilcoxon signed-rank tests for differences in distributions.

	Restricting Firms		Nonrestricting Firms		*p*-Value of Paired Test for Diff. in Means	Number of Matched
Variable	Mean	Median	Mean	Median	(Distributions)	Pairs
Total assets (millions of dollars)	7,249.60	1,216.25	5,729.66	840.06	0.029 (0.048)	108
CEO cash compensation ($ 000s)	1,358.56	941.22	1,104.17	703.89	0.0489 (0.025)	108
CEO equity-based compensation ($ 000s)	2,278.06	633.49	1,744.69	325.74	0.328 (0.110)	108
Non-CEO executive cash compensation ($ 000s)	2,368.64	1,821.09	1,811.90	1,320.32	0.001 (0.0002)	108
Non-CEO executive equity-based compensation ($ 000s)	2,958.29	972.96	2,019.82	506.33	0.211 (0.006)	108
CEOs with options all underwater (%)	10.68	na	17.48	na	na	103
Non-CEO executives with options all underwater (%)	2.78	na	5.83	na	na	103
CEO shareownership (%)	2.35	1.07	4.94	1.47	0.005 (0.024)	108
Non-CEO executive shareownership (%)	2.36	1.08	3.39	0.89	0.189 (0.99)	106
Board size	10.01	10	9.56	9	0.219 (0.323)	108
Fraction of board comprised of insiders	0.24	0.23	0.27	0.22	0.139 (0.266)	108
Inside director shareownership (%)	3.89	1.70	8.32	2.83	0.0018 (0.009)	108
Nonemployee director shareownership (%)	1.69	0.34	3.62	0.72	0.045 (0.076)	108
Institutional shareholdings (%)	58.79	61.4	50.97	55	0.010 (0.027)	99
Number of institutional investors	185.36	120	134.86	101	0.0002 (0.001)	95
Unaffiliated blockholder ownership (%)	18.97	17.4	14.14	13.6	0.008 (0.024)	103
Stock return volatility	0.36	0.31	0.37	0.35	0.880 (0.431)	108
Unadjusted stock return over prior year	0.23	0.18	0.38	0.21	0.313 (0.641)	107
Unadjusted stock return over prior two years	0.41	0.27	0.69	0.24	0.278 (0.899)	98

characteristic. This may be due to the fact that the industry matching was conducted at the four-digit SIC level, making it sometimes difficult to achieve a close size fit. Also, restricting firms, being large on average, are occasionally the largest firm in an industry but very rarely the smallest firm. Because of the size differences between restricting and control firms, I include firm size as a control variable in all regressions that involve firms from both samples.

Executive compensation is generally higher for restricting firms than for control firms. The median level of cash-based compensation for restricting-firm CEOs is $941,220, while for control-firm CEOs the median is $703,890. For non-CEO executives, the median cash pay for restricting firms and control firms is $1,821,090 and $1,320,320, respectively. On average, equity-based pay dominates cash pay. Indeed, more than half of non-CEO pay is comprised of stock option grants (valued with a Black–Scholes methodology, modified for dividends) plus restricted stock grants, and more than 60% of CEO pay consists of these equity-based components. Regarding the moneyness of executives' stock options, underwater options are not uncommon in the two samples. For instance, CEOs at over 10% of restricting firms hold option portfolios that are completely underwater at fiscal year-end, while over 17% of nonrestricting-firm CEOs have options that are all underwater. Turning to executive ownership, it appears that CEO shareholdings are higher at nonrestricting firms, but non-CEO shareholdings do not differ significantly between the two samples.

While there do not appear to be marked differences in board size or board composition between the two samples, board ownership is higher at control firms. Median equity ownership for directors who are executive officers is 2.83% at control firms versus 1.70% at restricting firms. For outside (i.e., nonemployee) directors, median ownership is 0.72% at control firms versus 0.34% at restricting firms. These ownership levels are significantly different at the 10% level according to a paired Wilcoxon signed-ranks test for differences in distributions.

Concentration of ownership among institutional investors and unaffiliated blockholders is greater for restricting firms. For those firms, median institutional ownership of common shares is 61%, and median ownership by unaffiliated blockholders is 17.4%. In contrast, corresponding figures for control firms are 55% and 13.6%. Paired Wilcoxon signed-ranks tests indicate statistically significant differences for these variables between the two samples.

Ex ante stock price performance is roughly commensurate between the two samples. For restricting firms, the median unadjusted stock return over the year prior to the restriction is 18%, and the median unadjusted return for nonrestricting firms is 21%. Over the two-year period preceding the restriction, the median cumulative unadjusted stock return for restricting and nonrestricting firms is 27% and 24%, respectively. According to paired-sample t-tests, mean stock returns over the one- and two-year periods preceding the restriction do not differ significantly.

Thus, the univariate comparisons show that repricing policy is likely a function of not just one factor, but rather multiple firm-specific factors related to board ownership, CEO ownership, and the presence of external monitors. Because these factors may have interdependent effects and interactions that are not captured in univariate comparisons, in the next section I employ a multivariate framework to more fully examine the determinants of firms' repricing policies.

B. Multivariate Analysis

Table III reports estimated coefficients from three conditional logit models that relate repricing policies to firm-specific characteristics. Note that conditional logit regression, which permits outcome probabilities to depend on choice-specific characteristics, is the appropriate estimation technique in this setting since the control sample is constructed by matching firms one-to-one with restricting firms.[14] In each regression, the dependent variable takes the value of unity for firms that adopt repricing restrictions, and zero for control firms. The number of observations differs across regressions due to limited data availability for some of the variables.

Model 1 includes explanatory variables that measure the quality of internal governance and the strength of managers' equity-based incentives. The coefficient estimates indicate that CEO shareownership is negatively related to the likelihood of a repricing restriction. The point estimate for CEO ownership is –0.085, significant at the 5% level. This supports the view that a no-repricing policy can benefit some firms, especially those with low CEO ownership and hence weak managerial incentives, by removing managers' downside protection. At the same time, the negative coefficient shows that firms with high CEO share ownership—that is, firms with linear managerial payoff schemes that are robust to stock declines—are more likely to maintain repricing flexibility. This suggests that, in practice, the benefits of ex ante commitment probably dominate the benefits of recontracting flexibility. With regards to non-CEO equity ownership, the coefficient estimate is negative and not significantly different from zero, consistent with the fact that non-CEO executives' actions generally have less impact on shareholder wealth than do the actions of CEOs.

Neither CEO option holdings nor non-CEO option holdings has a significant impact on the likelihood of adopting a restrictive policy. One possible explanation of this finding is that, although options are an important part of incentive pay, the bulk of incentives come ultimately from direct stock ownership (Murphy (1999)). At the same time, however, the imputed strike-to-price ratio of executives' option portfolios has a positive and significant coefficient, implying that a restriction is more likely if options are out-of-the-money. This constitutes

[14] See McFadden (1974) and Maddala (1983) for discussion of the uses and properties of the conditional logit model.

Table III

Conditional Logit Analysis of Factors Affecting the Adoption of Repricing Restrictions

This table presents coefficient estimates from conditional logit models explaining the decision to restrict repricing. The sample consists of 108 firm pairs, each of which includes a firm that adopted an executive option repricing restriction during the period 1994 to 1998 and a nonrestricting control firm matched by total assets and four-digit SIC code. The dependent variable is one when a restriction is adopted and zero otherwise. All independent variables are measured as of the end of the fiscal year immediately preceding adoption of the relevant restriction. Firm size is the natural logarithm of total assets in millions of dollars. CEO shareownership is the percentage of common shares outstanding owned by the CEO. CEO option holdings are the number of options held by the CEO as a percentage of common shares outstanding. Non-CEO executive shareownership is the percentage of common shares held by named executives other than the CEO. Non-CEO option holdings are the total number of options held by non-CEO named executives as a percentage of common shares. The imputed strike-to-price ratio of executive options is the strike price inferred for named executives from the proxy statements' option holdings table, divided by the closing stock price on the last trading day of the fiscal year. The tenure of the CEO is the number of years the CEO has held that position. The CEO/chairman dummy variable equals one if the CEO holds the office of chairman. Board size is the total number of directors on the board. The fraction of insiders on the board is the number of inside directors (i.e., current employees of the firm) divided by the board size. The nonemployee blockholding director variable is a dummy variable equal to one if a director who is not a current employee of the firm owns more than 5% of the common shares. The compensation-related shareholder proposal dummy is equal to one if the firm received a shareholder proposal related to executive compensation within the past three years. The focus list targeting dummy equals one if the firm appeared on the annual focus list of CalPERS or the Council of Institutional Investors in the past three years. Unaffiliated blockholder ownership is the percentage of common shares held in blocks of 5% or more by shareholders who have no business ties with the firm. Institutional shareholdings are the percentage of common shares held by institutional investors. The dummy variable indicating past repricing is equal to one if the firm repriced a named executives' options within the past three years. CEO excess cash compensation is the residual from a regression explaining the natural log of one plus cash compensation, as described in Section II.B. Stock return volatility is the annualized standard deviation of daily stock returns (excluding dividends) over the past year. Shares available for future grants equals the total number of shares remaining for executive option awards under the firm's option plans, divided by common shares outstanding. All data are from CRSP, COMPUSTAT, 10-K filings, annual reports, proxy statements, *Compact Disclosure*, and *Value Line Investment Survey*. Regressions exclude firm-pairs for which data are not available for all the explanatory variables. *p*-values are given in parentheses below the coefficient estimates. The number of outcomes predicted correctly by each model is computed using a cutoff rule of 0.5 for predicted probabilities (where the probabilities are conditional on one positive outcome occurring within each firm pair).

Explanatory Variables	Model 1	Model 2	Model 3
Firm size (logarithm of total assets)	0.928**	1.905***	1.826**
	(0.032)	(0.009)	(0.014)
CEO shareownership (%)	−0.085**	−0.086**	−0.087**
	(0.033)	(0.037)	(0.033)
CEO option holdings (%)	0.083	−0.095	−0.163
	(0.489)	(0.570)	(0.371)
Non-CEO executive shareownership (%)	−0.029	−0.043	−0.037
	(0.425)	(0.372)	(0.443)
Non-CEO executive option holdings (%)	0.187	0.184	0.193
	(0.168)	(0.261)	(0.259)
Imputed strike-to-price ratio of executive options	1.071**	1.567**	1.827**
	(0.050)	(0.021)	(0.014)

Table III—*Continued*

Explanatory Variables	Model 1	Model 2	Model 3
CEO tenure	−0.032	−0.033	−0.026
	(0.273)	(0.323)	(0.440)
CEO/chairman dummy	0.821**	1.032**	0.979**
	(0.033)	(0.032)	(0.044)
Board size	0.070	0.098	0.095
	(0.346)	(0.305)	(0.326)
Fraction of insiders on the board	−0.723	0.084	0.253
	(0.553)	(0.956)	(0.870)
Nonemployee 5% blockholder on the board	−2.099**	−2.349*	−2.355*
	(0.040)	(0.063)	(0.057)
Compensation-related shareholder proposal		−1.277	−1.436
		(0.245)	(0.191)
Focus list targeting		1.914	2.133
		(0.259)	(0.213)
Unaffiliated blockholder ownership (%)		0.078***	0.083***
		(0.006)	(0.005)
Institutional shareholdings (%)		−0.011	−0.010
		(0.425)	(0.440)
Executive option repricing in past three years		3.212***	3.716***
		(0.008)	(0.007)
CEO excess cash compensation		0.178	0.195*
		(0.105)	(0.096)
Stock return volatility			−1.021
			(0.596)
Shares available for future grants as fraction of common shares			1.691
			(0.309)
Number of observations	210	202	202
Number of outcomes predicted correctly	144	140	140
Log-Likelihood	−56.069	−42.307	−41.777
Model *p*-value	0.0004***	0.0000***	0.0000***

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

further evidence that firms may be especially inclined to adopt restrictions for incentive purposes when managerial incentives are weak.[15]

Among the variables related to internal governance, the variable indicating CEO/chairman duality has an estimated coefficient that is positive and significant at the 5% level (p-value = 0.033). Furthermore, the indicator measuring the presence of a nonemployee blockholding director has a negative and significant (p-value = 0.040) coefficient. The signs and statistical significance of these two variables are consistent with the view that firms with less

[15] In additional, untabulated regressions, I examine the effects of calculating the imputed strike-to-price ratio for only vested options or only unvested options. The results using vested options are qualitatively similar to those reported in Table III. When only unvested options are used, the estimated coefficient is again positive, but it is no longer significant at the 5% level. This may indicate that firms often perceive retaining managers to be a more pressing concern than strengthening managers' incentives.

independent monitoring and weaker internal control mechanisms reap greater rewards from imposing ex ante repricing restrictions that curtail managerial self-dealing. The other measures of internal governance quality, namely, CEO tenure, board size, and board composition, do not significantly affect the choice of policy.

Model 2 includes additional variables to test whether external shareholder scrutiny and past compensation practices affect the choice of repricing policy. According to the regression, while the general level of institutional ownership does not significantly affect the likelihood of a restriction, the level of concentrated ownership among external shareholders does have an impact: The coefficient on unaffiliated blockholder ownership is significantly positive at the 1% level.[16] The regression also demonstrates that the indicator variable for past executive option repricings is positive and significant (p-value = 0.008). The remaining three measures of shareholder scrutiny and past compensation (the occurrence of a compensation-related proposal, targeting via focus lists, and the amount of excess CEO cash compensation) all have insignificant coefficient estimates. Overall, the results are consistent with the notion that, at least in part, firms adopt restrictions in order to placate large external shareholders who are categorically opposed to repricings.

Finally, the third model of Table III augments the specification with factors that could be related to the future cost of implementing a restrictive policy. Although the estimated coefficients for stock return volatility and for the number of available future option grants have the expected signs, neither estimate is statistically significant. Hence, I conclude that the choice of repricing policy is not driven by stock return volatility or by limits on the inventory of shares authorized for future option awards. The results for the rest of the explanatory variables are qualitatively similar to those obtained in Model 2, the sole exception being CEO excess compensation, which is now significantly positive at the 10% level.

To evaluate the goodness-of-fit provided by the models, I calculate predicted probabilities of observing a restriction (conditional on one positive outcome within each firm pair) and take the predicted outcome to be one if the probability is greater than 0.5. As shown in Table III, Model 1 correctly predicts 144 out of 210 outcomes (68.5%). Models 2 and 3 also perform reasonably well, each correctly classifying 69.3% of the outcomes.

Overall, the results suggest that the intensity of managerial stock-based incentives and the degree of external shareholder scrutiny are the most important determinants of firms' repricing policies. The potential for managerial self-dealing within the firm also appears to play a role. However, there is little evidence that the choice of policy is impacted by other factors that might affect the near-term need to reprice.

[16] If either institutional ownership or unaffiliated blockholder ownership is dropped from Models 2 and 3, the remaining external ownership variable is significant at the 5% level, and the other explanatory variables have coefficient estimates that are qualitatively similar to those in Models 2 and 3.

C. Investor Reaction to Repricing Restrictions

To shed further light on the factors influencing repricing policy, I examine the cross-sectional relation between firm characteristics and the share price reaction to repricing restrictions. If, as the results of the previous section suggest, a firm's repricing policy is determined conjointly by managerial incentives, internal governance, and shareholder scrutiny, then investors' reaction to a restriction should vary systematically with observable characteristics of the CEO, the board, and the structure of external ownership.

The empirical tests are based on a subsample of the restricting firms chosen in accordance with three criteria. First, firms must have sufficient daily stock price data to perform the analysis. Second, firms' restrictions must be disclosed in proxy statements mailed to shareholders on identifiable proxy mailing dates. And third, on the mailing date firms must not experience other unusual or informative events that are reported in the financial press or disclosed in proxy statements. These three criteria exclude 20 of the sample firms for the following reasons: eight firms (7.4%) were targeted by shareholder proposals, unrelated to repricing, that appeared in the definitive proxy statement; six firms (5.6%) did not disclose their restrictions in proxy statements but instead in additional materials and/or correspondence, and so information is not available about the precise day that shareholders presumably first learned of the restrictions; two firms (1.9%) underwent name changes; two firms announced reincorporations; one firm (0.9%) sought shareholder approval for a new class of preferred stock; and one firm did not have sufficient stock price data to perform the analysis. Firms are not excluded when proxy statements contain routine agenda items such as the election of directors or the ratification of auditors. The final sample for the event study consists of 88 first-time restrictions of executive stock option repricings, of which 41 (46.6%) are amendments to existing option plans and 47 (53.4%) are restrictions embedded in newly adopted replacement option plans.

Since repricing restrictions are proxy-related proposals put forth by management, they are not typically announced in *Wall Street Journal* articles or in other major press releases.[17] Hence, identifying the exact date on which information is publicly revealed requires some judgment. On the one hand, shareholders should learn of the proposed restrictions no later than the proxy mailing date, that is, the date on which the company plans to first mail proxy materials to shareholders. However, the board of directors typically resolves to adopt a restriction several weeks in advance of proxy mailings, and it is conceivable that information leakage occurs prior to the mailing date. For the purposes at hand,

[17] A search of press releases and news articles over the time period of this study indicates that only one firm publicly disclosed a repricing restriction outside of its proxy statement. On February 10, 1999, Raytel Medical Corporation announced that it had modified its options plans to preclude any repricings by the Board of Directors without shareholder approval. According to CEO Richard F. Bader, the purpose of the change was to "be more in step with the wishes of some institutional investors and the general regulatory direction of both FASB and the SEC" (Smith, Jr. (1999)).

I follow most studies of the share price reaction to management proposals and take the event date to be the proxy mailing date.[18]

I conduct a standard market-model event study and estimate market-model parameters using daily price data over the 200-day period ending 61 days prior to the event date. Over the three-day window $[-1, +1]$, the average abnormal return for the sample of 88 restrictions is –0.087%, which is insignificantly different from zero (z-statistic = 0.186). Similarly, average abnormal returns computed over the $[-2, +2]$ and $[0, +2]$ windows surrounding the event date are insignificantly different from zero with z-statistics of 0.451 and 1.025, respectively. Thus, investor reaction to a repricing restriction does not, on average, appear to be markedly positive or negative.

Table IV presents cross-sectional ordinary least squares regressions estimating the effects of internal governance, managerial incentives, and shareholder scrutiny on excess returns over the three-day window centered on the proxy mailing date. The regressions include the majority of explanatory variables used in the conditional logit regressions reported in Table III. The second regression also controls for prior operating performance and firm size by including the return on assets over the previous year and the natural logarithm of total assets. Due to missing institutional ownership data for one firm, only 87 observations are used in estimating these regressions.

The coefficients on CEO shareholdings and on executives' imputed strike-to-price ratio are not statistically significant in either regression. However, controlling for size and performance, non-CEO share ownership has a coefficient of –0.0022, which is statistically significant at the 10% level (p-value = 0.074). This provides mild evidence that investors expect a no-repricing commitment to add value by strengthening the incentives of non-CEO officers.

In both regressions, CEO-Chairman duality and board size have positive but statistically insignificant effects on excess returns. Nonetheless, there is a significant association between the presence of inside directors and the level of the excess return. In the first regression, for example, the coefficient on the fraction of the board comprised of insiders is 0.097, which is statistically significant at the 5% level. When the specification controls for firm size and return on assets, the coefficient on the fraction of insiders continues to be positive and significant (p-value = 0.021). Apparently, investors perceive a restrictive change in repricing policy more favorably when the board is dominated by insiders. This perception may arise because insider-dominated are easily "captured" by the Chief Executive Officer with regards to repricing decisions (Gilson and Vetsuypens (1993)) or because insider directors themselves have large option holdings.

Turning finally to measures of external shareholder scrutiny, both regressions show that the only aspect of shareholder presence that is systematically related to the abnormal stock price reaction is focus-list targeting by CalPERS

[18] In additional analysis, I perform tests similar to those in this section except that the event date is taken to be the earlier of (1) the proxy mailing date and (2) the first date on which a preliminary or definitive proxy appeared electronically in the SEC Edgar database. The analysis indicates that the amount of information release before the proxy mailing date is minimal for my sample of firms.

Table IV

Multivariate Analysis of Abnormal Stock Price Reactions

Ordinary least-squares regressions explaining three-day abnormal returns surrounding the proxy mailing date for repricing restrictions adopted by firms during the period 1994 to 1998. Abnormal returns are calculated from a single-factor market model estimated with daily data over the 200-day period ending 61 days before the proxy mailing date. CEO shareownership is the percentage of common shares outstanding held by the CEO. Non-CEO executive shareownership is the percentage of common shares held by named, non-CEO executives. The imputed strike-to-price ratio of executives' options is the strike price of named executive's options inferred from the proxy statement's table of option holdings, divided by the stock price on the last trading day of the fiscal year. The CEO/chairman dummy variable equals one if the CEO holds the office of chairman. Board size is the number of directors on the board. Fraction of insiders on the board is the number of inside directors (current firm employees) divided by the board size. The compensation-related shareholder proposal dummy is equal to one if a firm received a shareholder proposal related to executive compensation in the three years before the restriction year. The focus list targeting dummy equals one if a firm appeared on the annual focus list of CalPERS or the Council of Institutional Investors in the three years before the restriction. Unaffiliated blockholder ownership is the percentage of common shares held in blocks of at least 5% by shareholders with no business ties to the firm. Institutional shareholdings are the percentage of common shares held by institutional investors. The dummy variable indicating past repricing activity is equal to one if the firm repriced a named executive's options within the past three years. Return on assets is measured at fiscal year-end and is equal to income before extraordinary items divided by total assets. Firm size is the natural logarithm of total assets in millions of dollars. Data are from proxy statements, annual reports, 10-K filings, *Compact Disclosure, Value Line Investment Survey*, COMPUSTAT, and CRSP. *t*-statistics for the coefficient estimates are given in parentheses.

	(1)	(2)
Intercept	−0.0096	−0.00048
	(−0.297)	(−0.014)
CEO shareownership (%)	−0.0015	−0.0017
	(−1.082)	(−1.205)
Non-CEO executive shareownership (%)	−0.0018	−0.0022*
	(−1.483)	(−1.813)
Imputed strike-to-price ratio of executive options	−0.014	−0.0046
	(−0.536)	(−0.180)
CEO/chairman dummy	0.0049	0.0082
	(0.429)	(0.708)
Board size (number of directors)	0.00017	0.0011
	(0.099)	(0.565)
Fraction of insiders on the board	0.0965**	0.1045**
	(2.161)	(2.362)
Compensation-related shareholder proposal	0.0021	0.0151
	(0.086)	(0.588)
Focus list targeting	0.0345*	0.0334*
	(1.803)	(1.763)
Unaffiliated blockholder ownership (%)	0.00049	0.00039
	(1.356)	(0.988)
Institutional shareholdings (%)	−0.00018	−0.00012
	(−0.682)	(−0.382)
Executive option repricing in past three years	−0.0298	−0.0213
	(−1.654)	(−1.15)
Return on assets		0.0666*
		(1.844)
Firm size (logarithm of total assets)		−0.0046
		(−1.030)
Adjusted R-square	0.029	0.054
Number of observations	87	87

** and * indicate statistical significance at the 5% and 10% levels, respectively (two-tailed tests).

or the Council of Institutional Investors. The coefficient on the focus list indicator is positive and significant at the 10% level, implying that investors react to a restriction more favorably when the adopting firm's past performance is deemed by shareholder activists to have been poor. Indeed, investors may view a restriction by a targeted firm as tangible evidence that the firm is willing to accede to the demands of shareholder activists in order to improve overall performance.

IV. Repricing Policy and Executive Turnover

The results of the preceding analysis suggest that firms take into account managerial incentives and managerial self-dealing when choosing their ex ante repricing policies. However, another potentially very important role for repricing pertains to the labor market for executives. As discussed in Section I, stock price declines can often push a manager's unvested stock options out-of-the-money, and unless the options are repriced or replaced the manager may leave his current position to pursue more attractive employment opportunities elsewhere. In this section, I examine the connection between repricing policy and the sensitivity of turnover to stock price movements in order to test the hypothesis that repricing flexibility is an effective tool for retention.

The empirical tests focus primarily on turnover of senior executives below the CEO. A priori, one would expect retention to be more of an issue for non-CEO executives. The reasons for this are twofold. First, the position of CEO carries with it special prestige and distinction within an organization, and individuals holding that position are less likely to seek employment elsewhere for career advancement. Non-CEO executives, on the other hand, are more likely to value an employment opportunity at another firm, especially if it entails an increase in prestige and rank. For example, Fee and Hadlock (2003) document that, in three-fourths of the cases where the CEO of a large, publicly traded firm is succeeded in office by an outsider, the successor was most recently employed below the rank of CEO. Second, CEOs are more likely to be older and closer to retirement than non-CEO executives. For a CEO who is contemplating retirement, it is not clear a priori that a stock price decline will necessarily increase the CEO's incentives to voluntarily depart the firm. A share price decline might even induce a CEO to postpone retirement if the resulting decrease in personal wealth is sufficiently large.

To identify executive turnover events for each firm, I first collect data from proxy statements on the names and positions of all "top five" executives who are present at the beginning of a fiscal year.[19] This is done for up to three fiscal years before each restriction is adopted (years –3, –2, and –1) and three fiscal years after adoption (+1, +2, and +3). I treat the year of adoption as year

[19] Out of the 216 restricting and nonrestricting firms, I exclude two firms (Del Webb Corporation and Tektronix, Inc.) from the analysis of this section because these firms dropped restrictions within four years after the date of initial adoption. The results are not sensitive to the exclusion of these firms.

+1 because newly adopted repricing restrictions, being management-sponsored proxy proposals, go into effect near the beginning of a fiscal year. While including year +1 maximizes the observations available for model estimation, the fact that restrictions do not coincide exactly with fiscal-year beginnings could slightly reduce the power of the empirical tests. In additional tests, I confirm that the results of this section do not change materially when years –1 and +1 are excluded from the analysis.

For each executive identified in the above manner, I ascertain whether the executive is still employed as a company officer at the beginning of the subsequent fiscal year. Because the disappearance of a named executive from a proxy statement's summary compensation table does not necessarily mean that the executive left the firm, to confirm individual departures I rely on Standard and Poor's *Register of Corporations, Directors, and Executives* and on lists of corporate officers provided in annual reports.[20] This yields information on the incidence of executive turnover within 5,441 executive-years of data corresponding to 1,396 firm-years of data. Out of this total, 4,052 (74.5%) correspond to data on non-CEO executives, and 1,389 (25.5%) correspond to CEO data.

The annual CEO turnover rate in my sample, 8.06%, is higher than the 7.65% annual rate documented by Weisbach (1988), although it is lower than the 12.16% rate found by Parrino (1997), the 9.3% rate found by Denis and Denis (1995), and the 10.82% rate reported by Fee and Hadlock (2002). For executives below the level of CEO, the annual turnover rate in my sample is 13.55%. While most of the non-CEO executive departures are isolated, a considerable number of these non-CEO turnover events (94 out of 424) occur in the same firm and same year as another non-CEO turnover event.

The overall rate of CEO turnover appears to be slightly higher for restricting firms than for control firms. Out of 680 restricting-firm observations, there are 56 CEO departures (8.24%), compared to 56 CEO turnover events out of 709 observations (7.90%) for control firms. At levels below the CEO, the difference is more pronounced. Restricting firms have an annual non-CEO turnover rate of 14.25%, whereas control firms experience an average non-CEO turnover rate of 12.79% per year.

Table V presents the results of regressions designed to test the hypothesis that repricing serves as a retention device. Probit regressions estimated by maximum likelihood are used to explain the probability of executive turnover in terms of firm performance, repricing policy, and stock price movements. The estimation is performed separately for fiscal years before and fiscal years after the relevant firm adopted a restriction. In each regression, the dependent variable equals one if a turnover occurs in a given executive-year, and zero otherwise. Note that each regression controls for the possible effects of firm size by

[20] Note that this procedure of identifying executive turnovers will fail to include cases in which an executive joined a firm after the beginning of a particular fiscal year and departed the firm prior to the end of the fiscal year. An inspection of proxy statements, annual reports, and other filings suggests that such instances are uncommon.

Table V

Regression Estimates of the Likelihood of Executive Officer Turnover

Estimated coefficients from probit models of executive officer turnover at 216 firms consisting of 108 companies adopting repricing restrictions during the period 1994 to 1998 and 108 size- and industry-matched counterparts. The dependent variable in each probit model equals one if an executive departed the firm in a particular year and zero otherwise. Regressions are based on 5,441 executive-years of data that include up to three years before and three years after enactment of a restriction. Data are obtained from COMPUSTAT, CRSP, proxy statements, 10-K filings, annual reports, and *Standard and Poor's Register of Corporations, Directors, and Executives*. CEO turnover regressions exclude observations for which the CEO is over 62 years old. Adjusted stock returns and adjusted ROAs are calculated by subtracting two-digit SIC industry median returns from firm returns. Prerestriction years are defined to be event-years –3, –2, and –1, while postrestriction years are defined to be event-years +1, +2, and +3. Numbers in parentheses below coefficient estimates are *p*-values. The table also presents differences in individual coefficients between the prerestriction and postrestriction subsamples. Numbers in parentheses below differences are *p*-values from likelihood ratio tests of equality between individual coefficients for the two subsamples.

	Non-CEO Turnover			CEO Turnover		
	Prerestriction Years (1)	Postrestriction Years (2)	Difference (3)	Prerestriction Years (4)	Postrestriction Years (5)	Difference (6)
Panel A: Stock Price Performance						
Intercept	−1.076***	−0.676***	0.4	−1.268***	−1.081***	0.187**
	(0.000)	(0.000)	(0.178)	(0.001)	(0.002)	(0.047)
Logarithm of total assets	−0.007	−0.050**	−0.043	0.003	−0.014	−0.017*
	(0.739)	(0.021)	(0.358)	(0.955)	(0.770)	(0.058)
Adjusted stock return	0.001	0.035	0.034	−0.045	0.002	0.047
	(0.976)	(0.278)	(0.1667)	(0.732)	(0.975)	(0.511)
Adjusted stock return over prior year	−0.118	0.043	0.161	0.029	0.261	0.232*
	(0.296)	(0.633)	(0.590)	(0.900)	(0.135)	(0.068)
Dummy for restricting firm ×	0.124	−0.544***	−0.668***	−0.696*	−0.547*	0.149
Raw stock return over prior year	(0.361)	(0.001)	(0.003)	(0.095)	(0.072)	(0.345)
Log likelihood	−611.15	−636.82		−123.82	−132.61	
Model *p*-value	0.860	0.000***		0.326	0.380	
Number of observations	1,595	1,567		384	368	

Panel B: Accounting Performance						
Intercept	−1.140***	−0.695***	0.445*	−0.965***	−0.906***	0.059
	(0.000)	(0.000)	(0.054)	(0.005)	(0.007)	(0.195)
Logarithm of total assets	−0.005	−0.047**	−0.042	−0.041	−0.027	0.014
	(0.820)	(0.028)	(0.136)	(0.383)	(0.555)	(0.199)
Δ(Adjusted ROA)	0.022	−0.088	−0.11	0.188	−0.759*	−0.947
	(0.957)	(0.604)	(0.799)	(0.819)	(0.074)	(0.281)
Δ(Adjusted ROA over prior year)	−0.210	−0.112	0.098	0.173	0.234	0.061
	(0.638)	(0.633)	(0.666)	(0.833)	(0.733)	(0.870)
Dummy for restricting firm ×	0.065	−0.550***	−0.615***	−0.306	−0.656**	−0.35
Raw stock return over prior year	(0.486)	(0.000)	(0.001)	(0.210)	(0.026)	(0.488)
Log likelihood	−658.42	−706.70		−138.17	−154.76	
Model *p*-value	0.945	0.000***		0.627	0.025**	
Number of observations	1,787	1,746		427	414	

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

including the natural logarithm of total assets at the end of year –1. In Panel A, I measure firm performance as the firm's annual stock return minus the median return, over the same period, among all firms in the same two-digit SIC industry. Both lagged and contemporaneous stock returns have been shown to affect the likelihood of executive turnover (see Warner, Watts, and Wruck (1988) and Weisbach (1988)). Therefore, I include returns over both the current fiscal year and the prior fiscal year.[21] Finally, I use an interaction variable to capture retention differences between firms in the restricting sample and firms in the nonrestricting sample. This variable is created by interacting the unadjusted stock return[22] over the prior year with an indicator variable equal to one if and only if an observation corresponds to the restricting firm sample.

The regressions in Panel A reveal that industry-adjusted stock performance does not have a strong effect on the probability of executive turnover within my sample. According to the non-CEO turnover regressions in columns (1) and (2), the estimated coefficients on the current-year and prior-year adjusted return variables are not significantly different from zero. Likewise, columns (4) and (5) show that, for CEO turnover, the adjusted return coefficients have mixed signs and are insignificant. The absence of a link between CEO turnover and industry-adjusted stock performance is somewhat unexpected in the light of the findings from several recent studies.[23] However, the failure to detect a performance-turnover relationship for CEOs could be due to the limited number of observations used in estimating the models.

If repricing does serve as a retention device, then the relation between executive turnover and stock price declines should become more pronounced after a firm restricts repricing. This implication is examined for non-CEOs by comparing the estimated coefficients for the interaction variable in columns (1) and (2) of Panel A. For the prerestriction subsample, restricting firms do not display a higher sensitivity: The coefficient on the interaction variable in column (2) is equal to 0.124, insignificantly different from zero. In contrast, for the postrestriction regression in column (3), the coefficient on the interaction variable decreases to –0.544 (p-value = 0.001). As column (3) indicates, the prerestriction and postrestriction coefficients for the interaction variable are statistically different from one another (p-value = 0.003) according to a likelihood ratio test for structural stability. This result constitutes the main evidence for the view that repricing flexibility is useful for executive retention.

Columns (4) through (6) of Panel A consider the effects of repricing restrictions on CEO turnover. To separate out the possible effects of CEO retirements,

[21] Because lagged stock returns may be irrelevant to the performance of an executive who has been employed for less than a year, including all executives in the regressions could lead to a potential misspecification. When the analysis of this section is repeated using only executives who have been employed by their firm for at least two full years, the qualitative results do not change.

[22] This return measure excludes ordinary dividends since it is intended to capture the effects of past stock price movements on the moneyness of executive stock options (which in practice are almost never dividend protected).

[23] See, for example, Coughlan and Schmidt (1985), Parrino (1997), Warner et al. (1988), Weisbach (1988), Hadlock and Lumer (1997), Denis, Denis, and Sarin (1997), and Huson, Parrino, and Starks (2001).

I exclude observations in which the CEO is 63 years of age or older. In both the prerestriction and postrestriction regressions, the coefficients on the interaction variable are negative at mild levels of significance, and the two coefficients are not significantly different from each other according to a likelihood ratio test. Thus, I do not find evidence that repricing policy has an appreciable effect on CEO retention.

As argued by Weisbach (1988), Warner et al. (1988), and others, management turnover may be influenced not only by stock price performance, but also by accounting performance. Panel B of Table V contains regressions similar to those in Panel A except that the current-year adjusted stock return and prior-year adjusted stock return are replaced by changes in industry-adjusted ROA over the current and prior year. Industry-adjusted ROA is computed as own-firm ROA minus the median ROA in the same two-digit SIC industry. Most of the basic results are qualitatively unchanged. For non-CEOs, the interaction coefficient is positive and insignificant in column (1) but negative and significant in column (2), consistent with the view that repricing serves as a retention device. For CEOs, while the prerestriction interaction coefficient is insignificant and the postrestriction coefficient is significantly negative, the two coefficients do not differ significantly, again suggesting that repricing policy has little impact on CEO turnover.

An assumption underlying the analysis in Table V is that voluntary executive departures constitute a large fraction of the observed turnover events. To the extent that some executive departures occur for disciplinary reasons, the power of my tests is reduced. Unfortunately, it is not possible to unambiguously determine the true cause of turnover because descriptions of executive departures in the financial press are rare for executives below the level of President or Chief Financial Officer.[24] Therefore, I employ further tests that attempt to distinguish between turnovers on the basis of prior relative performance. These tests are conducted by examining subsamples corresponding to firm-years in which a firm's stock return was either above or below the median return among all firms within the same two-digit SIC industry. The results of these regressions are reported in Table VI. Columns (1) and (3) show that, for the above-median subsample, the prerestriction coefficient on the interaction variable is 0.160 (p-value = 0.281), but the postrestriction coefficient is –0.566 (p-value = 0.002). Columns (2) and (4) show that a similar difference is present when the interaction variable is formed from two-year stock returns instead of one-year stock returns. In contrast, for the below-median subsample, the interaction variable coefficient is not significantly different from zero in any of the regressions. This suggests that repricing policy has a greater effect on executive turnover when executives' past track records have been good, that is, when firms are willing to go to greater lengths to retain the executives.

[24] As several authors have noted (e.g, Warner et al. (1988) and Weisbach (1988)), even in cases of Chief Executive Officer turnover, for which media and press accounts are plentiful, it is difficult to distinguish unambiguously between forced and voluntary turnover.

Table VI

Executive Turnover for Subsamples of Firms Experiencing High and Low Relative Performance

Estimated coefficients from probit models of executive officer turnover at 216 firms consisting of 108 firms adopting repricing restrictions during the period 1994 to 1998 and 108 size- and industry-matched nonrestricting counterparts. The dependent variable equals one if an executive departed the firm in a particular fiscal year and zero otherwise. Regressions exclude CEO observations and are based on a combined sample of 4,052 executive-years of data obtained from COMPUSTAT, CRSP, proxy statements, 10-K filings, annual reports, and *Standard and Poor's Register of Corporations, Directors, and Executives*. Adjusted stock returns are calculated by subtracting two-digit SIC industry median returns from firms' raw returns. Prerestriction years are defined to be event-years –3, –2, and –1 while postrestriction years are defined to be event-years +1, +2, and +3. Regressions (1) through (4) are based on the subsample of firm-years for which the adjusted stock return during year –1 was positive; regressions (5) through (8) are based on firm-years for which the adjusted stock return during year –1 was negative. Numbers in parentheses below coefficient estimates are *p*-values.

	Stock Performance Above Industry Median Performance				Stock Performance Below Industry Median Performance			
	Prerestriction		Postrestriction		Prerestriction		Postrestriction	
Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	−1.116***	−1.435***	−0.727***	−0.882***	−1.026***	−1.151***	−0.871***	−0.935***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.003)	(0.002)
Logarithm of total assets	−0.008	0.026	−0.051*	−0.033	−0.002	0.011	−0.032	−0.027
	(0.809)	(0.458)	(0.075)	(0.258)	(0.943)	(0.731)	(0.369)	(0.460)
Adjusted stock return	0.013	0.014	−0.018	−0.009	−0.036	−0.095	0.056	0.060
	(0.799)	(0.787)	(0.802)	(0.898)	(0.726)	(0.426)	(0.145)	(0.112)
Adjusted stock return over past year	−0.096	0.076	0.171	0.124	0.168	0.057	−0.540	−0.667**
	(0.516)	(0.563)	(0.120)	(0.248)	(0.669)	(0.878)	(0.132)	(0.047)
Dummy for restricting sample ×	0.159		−0.566***		−0.128		−0.145	
Raw stock return over past year	(0.281)		(0.002)		(0.714)		(0.664)	
Dummy for restricting sample ×		0.050		−0.241**		−0.292		0.035
Raw stock return over past two years		(0.251)		(0.027)		(0.108)		(0.837)
Log likelihood	−333.25	−311.06	−374.46	−360.10	−276.94	−260.42	−259.59	−251.15
Model *p*-value	0.865	0.753	0.006***	0.119	0.984	0.485	0.019**	0.029**
Number of observations	913	867	993	961	682	655	574	560

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

I also examine whether the main qualitative results in Table V are robust to various changes in specification. For instance, I consider the effects of adding indicator variables for calendar years and/or two-digit SIC industries; estimating the probit models with firm random effects; or adjusting stock performance with value-weighted or equal-weighed market returns rather than with median industry returns. Additionally, I estimate models that employ indicator variables rather than partitioning the sample into prerestriction and postrestriction years. The results from all of these robustness checks further reinforce the conclusion that firms with repricing flexibility are better able to retain executive officers below the level of CEO.

V. Repricing Policy and Changes in Option-Granting Behavior

The analysis conducted above indicates that firms choose their repricing policies in accordance with a number of economic considerations and that, furthermore, repricing policies have important ex post consequences for managerial turnover. A related issue that is of some interest is whether the adoption of a repricing restriction affects firms' ex post option-granting behavior. Presumably, if repricings help improve managerial incentives and retention and if restrictive policies are not easily reversed, then a firm that has previously adopted a restriction may be driven to granting many new options in lieu of repricing. This should be especially true if recent stock price movements have pushed the firm's outstanding options deeply underwater.[25]

I investigate this issue by considering executive option award patterns for those firms in my sample that experienced large stock price declines after the adoption of a restriction. Specifically, I focus on the 22 out of 108 restricting firms that suffered negative cumulative stock returns of 20% or more over the two years after the date the policy was adopted. To account for "normal" changes in granting behavior due to poor performance, I match each of the 22 poor performers to a control firm using the following procedure. First, taking the year before the restriction as a base year, I attempt to identify a nonrestricting control firm in the same two-digit SIC industry that (1) did not adopt a restriction for four years after the base year and (2) experienced a two-year postadoption stock decline as close as possible to that of the restricting firm. If the prospective match has more than twice or less than half the total assets of the restricting firm in the base year, or if the two firms' postadoption returns differ by more than five percentage points, then I widen the search to the one-digit SIC level.

[25] News articles suggest that the need to provide a surrogate for repricing may have influenced the pattern of option grants for Lucent Technologies, a company in my sample that adopted a restrictive policy in 1998. During the year 2000, Lucent's stock price declined by over 80%, leaving roughly 75% of outstanding options underwater. In February 2001, Lucent's board of directors awarded to senior executives and other employees a new option for every two underwater options held. One compensation consultant remarked that the award seemed "somewhat unusual," given that Lucent had made substantial grants just six months earlier (Backover (2001)).

According to proxy filings, four of the 22 matching firms repriced options for named executives during the four years prior to the restriction, and five repriced within four years after the restriction. Among the poorly performing restricting firms, three repriced in the four-year prerestriction period, and none repriced in the four-year postrestriction period. Thus, while the postadoption stock price declines were large enough to induce some matching firms to reprice, the adopted restrictions seem to have been effective in curbing repricing ex post.

To measure the size of an option grant in a particular year, I divide the total number of new options awarded, excluding options awarded pursuant to a repricing, by the total number of common shares outstanding.[26] Overall, grants to restricting-firm CEOs appear to increase around the stock price decline. The median annual CEO grant among restricting firms rises from 0.10% during the two predecline years (year –2 and year –1) to 0.238% during the two postdecline years (year +3 and year +4). For control firms, the median annual grant increases from 0.0895 to 0.0934%. In 13 out of 22 firm-pairs, the increase in grants is larger for the restricting firm than for the matching firm. However, the changes are not significantly different between the two samples (p-value for two-tailed, paired Wilcoxon signed-ranks test = 0.2491).

For non-CEO executives, the median grant among restricting firms rises from 0.2431% in the predecline period to 0.3483% in the postdecline period, whereas the median grant among control firms actually decreases from 0.2310 to 0.1935%. The change for the restricting firm dominates in 15 out of 22 firm-pairs, and a two-tailed, paired Wilcoxon signed-ranks test indicates that the increase in grants is significantly higher for restricting firms than for control-firms (p-value = 0.0363).

Investigating further, I find that the increase in non-CEO grants is also significantly larger for restricting firms when the definition of a grant is expanded to include restricted share grants, options awarded in repricings, or both. In addition, the qualitative results are not altered if grants are calculated for individual executives rather than for executive teams. Thus, the evidence suggests that restricting firms do sometimes use additional grants of new options to substitute, albeit imperfectly, for ex post repricings. It is important to emphasize, however, that the evidence at hand is not adequate for ascertaining whether such substitutions occur primarily for managers' personal benefit or for shareholder value maximization.

VI. Conclusion

The lively debate among investors, consultants, and academics concerning the advantages and disadvantages of executive option repricing has lacked empirical evidence on why firms choose certain repricing policies and what the consequences are of such policy choices. This paper seeks to fill the gap

[26] Alternatively, the size of a grant could be measured as the Black–Scholes value of awarded options. However, this approach would be problematic due to the fact that the Black–Scholes formula does not account for option repriceability.

by using information on explicit repricing policies specified by compensation plans over the period 1994 to 1998. Based on the premise that firms choose their repricing policies to trade off economic costs and benefits, I examine the firm-specific factors that lead firms to either restrict repricing ex ante or to maintain repricing flexibility.

The empirical results indicate that managerial stock-based incentives are an important determinant of repricing policy. On average, CEOs of firms that grant repriceable options are more highly incentivized with option holdings and shareholdings than are CEOs of firms that precommit to a no-repricing policy. Also, multivariate regressions show that firms with higher levels of CEO share ownership are less likely to adopt a repricing restriction. While there is no evidence of a similar effect for non-CEO officer ownership, I do find that the likelihood of a restriction is negatively related to the average moneyness of executives' options. These results suggest that a no-repricing precommitment can strengthen managerial incentives by removing options' downside protection and that firms with weak equity-based incentives stand to gain the most from this precommitment effect.

Additional multivariate analysis reveals that the choice of repricing policy is related to internal governance characteristics, external shareholder monitoring, and past repricing activity. Firms are more inclined to adopt restrictive policies when their CEOs hold the title of chairman or when no nonemployee blockholding directors are present. When firms move to restrictive policies, the share price reaction is positively related to the presence of insiders on the board. Also, a firm is more likely to restrict repricing if it has conducted repricings in the past or if a substantial fraction of its shares is controlled by unaffiliated blockholders. Hence, not only do firms appear to respond to external shareholder pressure to curb repricing, but no-repricing policies seem to be chosen in earnest to limit managerial self-dealing, particularly when internal control mechanisms are weak.

I also find that repricing policies, once chosen, have important ex post consequences. First, firms with restrictive policies exhibit abnormally high rates of senior executive turnover in the aftermath of stock price declines. Consistent with the notion that CEOs generally care about retirement, not career advancement, restricting firms appear to be disadvantaged more in the retention of non-CEO executives than in the retention of CEOs. Second, restricting firms that suffer large ex post stock price declines appear to award unusually large numbers of new options and restricted stock. This finding accords with the view that firms that lack repricing flexibility are occasionally forced to conduct costly surrogate repricings to retain and reincentivize executives.

Taken as a whole, the results of the analysis highlight the fact that repricing policy plays a complex and important role in executive compensation design, one that encompasses both ex ante and ex post considerations. Therefore, repricing policy is perhaps best understood not in simple terms applicable to all firms, but rather in terms of individual firms' incentive systems, governance structures, and operating environments. Future research might shed light on how other important aspects of stock option design relate to various firm-specific characteristics.

REFERENCES

Acharya, Viral, Kose John, and Rangarajan Sundaram, 2000, On the optimality of resetting executive stock options, *Journal of Financial Economics* 57, 65–101.

Backover, Andrew, 2001, Lucent issues new options; move aims to improve morale, *USA Today*, March 8, p. 6B.

Bertrand, Marianne, and Sendhil Mullainathan, 1999, Is there discretion in wagesetting? A test using takeover legislation, *RAND Journal of Economics* 30, 535–554.

Black, Bernard, 1992, Agents watching agents: The promise of institutional investor voice, *UCLA Law Review* 39, 811–893.

Black, Fischer, and Myron Scholes, 1973, The pricing of options and corporate liabilities, *Journal of Political Economy* 81, 637–659.

Borokhovich, Kenneth, Kelly Brunarski, and Robert Parrino, 1997, CEO contracting and antitakeover amendments, *Journal of Finance* 52, 1495–1517.

Brenner, Menachem, Rangarajan Sundaram, and David Yermack, 2000, Altering the terms of executive stock options, *Journal of Financial Economics* 57, 103–128.

Carter, Mary Ellen, and Luann Lynch, 2001, An examination of executive stock option repricing, *Journal of Financial Economics* 61, 207–225.

Chance, Don, Raman Kumar, and Rebecca Todd, 2000, The "repricing" of executive stock options, *Journal of Financial Economics* 57, 129–154.

Chauvin, Keith, and Catherine Shenoy, 2001, Stock price decreases prior to executive stock-option grants, *Journal of Corporate Finance* 7, 53–76.

Chidambaran, Nenmara, and Nagpurnanand Prabhala, 2003, Executive stock option repricing, internal governance mechanisms, and management turnover, *Journal of Financial Economics* 69, 153–189.

Core, John, and Wayne Guay, 1999, The use of equity grants to manage optimal equity incentive levels, *Journal of Accounting and Economics* 28, 151–184.

Core, John, Robert Holthausen, and David Larcker, 1999, Corporate governance, chief executive officer compensation, and firm performance, *Journal of Financial Economics* 51, 371–406.

Coughlan, Anne, and Ronald Schmidt, 1985, Executive compensation, management turnover, and firm performance, *Journal of Accounting and Economics* 7, 43–66.

Del Guercio, Diane, and Jennifer Hawkins, 1999, The motivation and impact of pension fund activism, *Journal of Financial Economics* 52, 293–340.

Denis, David, and Diane Denis, 1995, Performance changes following top management dismissals, *Journal of Finance* 50, 1029–1057.

Denis, David, Diane Denis, and Atulya Sarin, 1997, Ownership structure and top executive turnover, *Journal of Financial Economics* 45, 193–221.

Fee, C. Edward, and Charles Hadlock, 2003, Raids, rewards, and reputations in the market for CEO talent, *Review of Financial Studies* 16, 1315–1357.

Gillan, Stuart, and Laura Starks, 2000, Corporate governance proposals and shareholder activism: The role of institutional investors, *Journal of Financial Economics* 57, 275–305.

Gilson, Stuart, and Michael Vetsuypens, 1993, CEO compensation in financially distressed firms: An empirical analysis, *Journal of Finance* 48, 425–458.

Hadlock, Charles, and Gerald Lumer, 1997, Compensation, turnover, and top management incentives: Historical evidence, *Journal of Business* 70, 153–188.

Hall, Brian, and Jeffrey Liebman, 1998, Are CEOs really paid like bureaucrats? *Quarterly Journal of Economics* 113, 653–691.

Hall, Brian, and Kevin Murphy, 2000, Optimal exercise prices for executive stock options, *American Economic Review* 90, 209–214.

Hallock, Kevin F., 1997, Reciprocally interlocking boards of directors and executive compensation, *Journal of Financial and Quantitative Analysis* 32, 331–344.

Hermalin, Benjamin, and Michael Weisbach, 1998, Endogenously chosen boards of directors and their monitoring of the CEO, *American Economic Review* 88, 96–118.

Huson, Mark, Robert Parrino, and Laura Starks, 2001, Internal monitoring mechanisms and CEO turnover: A long term perspective, *Journal of Finance* 56, 2265–2297.

Jensen, Michael, 1993, Presidential address: The modern industrial revolution, exit, and the failure of internal control systems, *Journal of Finance* 48, 831–880.

Jensen, Michael, and William Meckling, 1976, Theory of the firm: Managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics* 3, 305–360.

Jensen, Michael, and Kevin Murphy, 1990, Performance pay and top-management incentives, *Journal of Political Economy*, 98, 225–264.

Johnson, Marilyn, and Margaret Shacknell, 1997, Shareholder proposals on executive compensation, Working paper, Michigan State University.

Johnson, Shane, and Yisong Tian, 2000, The value and incentive effects of non-traditional executive stock option plans, *Journal of Financial Economics* 57, 3–34.

Karpoff, Jonathan, Paul Malatesta, and Ralph Walkling, 1996, Corporate governance and shareholder initiatives: Empirical evidence, *Journal of Financial Economics* 42, 365–395.

Lambert, Richard, David Larcker, and Robert Verrecchia, 1991, Portfolio considerations in valuing executive compensation, *Journal of Accounting Research* 29, 129–149.

Lipton, Martin, and Jay Lorsch, 1992, A modest proposal for improved corporate governance, *Business Lawyer* 48, 59–77.

Mace, Myles, 1986, *Directors: Myth and Reality* (Harvard Business School Press, Boston, MA).

Maddala, G. S., 1983, *Limited-Dependent and Qualitative Variables in Econometrics* (Cambridge University Press, New York).

McFadden, Daniel, 1974, Conditional logit analysis of qualitative choice behavior, in Paul Zarembka, ed., *Frontiers of Econometrics* (Academic Press, New York).

Mehran, Hamid, and David Yermack, 1997, Compensation and top management turnover, Working paper, New York University.

Murphy, Kevin, 1999, Executive compensation, in Orley Ashenfelter and David Card, eds.: *Handbook of Labor Economics*, *Vol. 3B* (North Holland, Amsterdam).

Opler, Tim, and Jonathan Sokobin, 1997, Does coordinated institutional activism work? An analysis of the activities of the Council of Institutional Investors, Working paper, Ohio State University.

Parrino, Robert, 1997, CEO turnover and outside succession: A cross-sectional analysis, *Journal of Financial Economics* 46, 165–197.

Saly, P. Jane, 1994, Repricing executive stock options in a down market, *Journal of Accounting and Economics* 18, 325–356.

Scholes, Myron, 1991, Stock and compensation, *Journal of Finance* 46, 803–823.

Simon, Ruth, and Ianthe Dugan, 2001, Use of stock options spins out of control, now a backlash brews, *Wall Street Journal*, June 4, p. C1.

Smith, Jr., E. Payson, 1999, Raytel medical corporation announces change in option plans, *Business Wire*, February 10.

Smith, Michael, 1996, Shareholder activism by institutional investors: Evidence from CalPERS, *Journal of Finance* 51, 227–252.

Strickland, Deon, Ken Wiles, and Marc Zenner, 1996, A requiem for the USA—is small shareholder monitoring effective? *Journal of Financial Economics* 40, 319–338.

Wahal, Sunil, 1996, Pension fund activism and firm performance, *Journal of Financial and Quantitative Analysis* 31, 1–23.

The Wall Street Journal, 1999, Breathing underwater: Amid Shareholder Complaints, companies look for alternatives to repricing options, April 8, p. R6.

Warner, Jerold, Ross Watts, and Karen Wruck, 1988, Stock prices and top management changes, *Journal of Financial Economics* 20, 461–492.

Weisbach, Michael, 1988, Outside directors and CEO turnover, *Journal of Financial Economics* 20, 431–460.

Yermack, David, 1996, Higher market valuation of companies with small boards of directors, *Journal of Financial Economics* 40, 185–211.

Yermack, David, 1997, Good timing: CEO stock option awards and company news announcements, *Journal of Finance* 52, 449–476.