On the Importance of Golden Parachutes

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ABSTRACT

While existing research addresses the presence of golden parachutes, it overlooks their relative importance to target CEOs. This importance is critical: it correlates with the moral hazard problem facing the executive most crucial to a merger's outcome. Parachutes that are either too trivial or too important relative to other takeover-induced wealth changes could produce 'unyielding resistance' or 'a rush to sale' despite the acquisition price offered. Neither attitude is likely to benefit target shareholders. We examine 851 acquisition bids from 1999-2007 and find more important parachutes benefit target shareholders through higher merger completion probabilities. However, other results indicate that as parachute importance increases target shareholders receive lower acquisition premia.

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"Companies receiving federal aid are going to have to disclose publicly all the perks and luxuries bestowed upon senior executives, and provide an explanation to the taxpayers and to shareholders as to why these expenses are justified. And we're putting a stop to these kinds of massive severance packages we've all read about with disgust; we're taking the air out of golden parachutes."

President Barack Obama
February 4, 2009[1]

Golden parachutes are more controversial today than when they first appeared over twenty years ago. Advocates argue that parachutes are a necessary part of a competitive pay package required to attract and retain talented executives. It is also argued that parachutes are beneficial to shareholders since they induce senior managers to "do the right thing" in the event of an acquisition attempt. Opponents object to parachutes because they are linked to a change in control of a company, not to its continuing performance. Detractors portray parachutes as guaranteeing managers "pay-for-failure," regardless of shareholder returns. Headlines from the popular press regularly criticize golden parachutes and express widespread concern about managerial excess and the lack of pay-for-performance related to parachute payments.

Government actions with regard to parachutes mirror the controversy. Recent regulation has paved the way for boards of target firms to either award or augment parachutes at the onset of a merger.[2] In contrast, companies receiving assistance from the Troubled Assets Relief Program (TARP) are prohibited from making parachute payments to their senior executives.[3] Collectively, all of these items suggest that the controversy surrounding golden parachutes is alive and well.

We study a sample of 851 acquisition offers during 1999-2007 to investigate whether golden parachutes benefit the executives receiving them, the shareholders in the firms that grant them, or

[1] The full speech by president Obama can be viewed at: http://www.whitehouse.gov/blog_post/new_rules/
[2] On October 18, 2006, the Securities and Exchange Commission (SEC) adopted amendments to Rule 14d-10(a)(2) of the 1934 Securities Act to provide a safe harbor enabling the compensation committee of a target's board of directors to provide severance, parachutes or other benefits for its executives during a tender offer negotiation.
[3] See: http://www.treas.gov/press/releases/hp1207.htm

both. From an academic perspective, these issues are similar to those addressed in the early literature: incentive alignment and managerial interest.[4] Although these hypotheses are well known, our implementation differs from prior work in several important respects. While the previous literature addresses the existence of parachutes, it does not consider their relative importance to the CEO. Target CEOs considering personal gains and losses from acquisitions will do so cognizant of the combined effects of all associated wealth changes. These include all components of their merger pay package and the potential of lost wages should the acquisition occur. As a result, when a firm becomes a takeover target, a moral hazard problem exists: the target CEOs have direct influence over actions that provide personal benefit at the possible expense of their shareholders. Because of this moral hazard, it is the relative importance of parachutes to target CEOs, not their mere presence, that must be recognized. Consequently, we re-examine existing hypotheses with two different measures of parachute importance relative to the target CEO's personal wealth. Our first measure scales the parachute payment by the value of the merger pay package awarded to the target CEO. Our second measure scales the parachute payment by the expected wage losses this executive would incur if the firm is acquired. We believe that recognizing this relative importance is critical for understanding the incentives of parachutes. Rational CEOs do not consider the wealth effects of golden parachutes in isolation when contemplating the personal effects of an acquisition. They consider the combined effects of all components of their pay package. An improper balance in an executive's pay package could generate either a 'rush to sale' or 'unyielding resistance' in the face of an acquisition attempt, regardless of the price offered. Either behavior is likely to harm target shareholders.

[4] Incentive alignment and managerial interest are hypotheses often studied in settings prone to agency problems; see, for example, Jensen and Meckling (1976).

We examine inferences drawn from the controversy surrounding parachutes. It is argued that parachutes prevent executives from derailing a merger; this has implications for deal completion. It is also argued that parachutes can strengthen the CEO's ability to bargain for the firm; this has implications for the premia offered in acquisitions. We expand upon previous work by exploring these topics in the context of the relative importance of the parachute, not just its existence.

We first study whether the relative importance of parachutes to target CEOs influences the likelihood that a merger is completed. These tests reveal that as the relative importance of the parachute increases, deals are more likely to be completed. This result suggests that the willingness to sell a target increases with the relative importance of golden parachutes. On the surface, these findings appear to support the incentive alignment hypothesis. However, because measurable wealth effects are absent from our deal completion tests, the managerial interest alternative cannot be dismissed. Consequently, we examine the effect of our proxies of parachute importance on the premia paid to target shareholders.

We find that golden parachutes affect the wealth of target CEOs and target shareholders in a non-trivial manner. On average, parachute payments account for approximately 30.5% of the total merger pay package target CEOs receive. These executives cash in about $4.9 million from parachutes when their firms are sold. Conversely, we find that a 10% increase in parachute importance relative to the merger pay package is associated with a drop in premia of about 4.97 percentage points. This shortfall implies a reduction of $249 million in deal value for the average deal in our sample. Consequently, our findings indicate that when CEOs are given stronger

incentives to sell their firms, vis-à-vis a larger parachute, they appear to do so even at the detriment of their shareholders. This result supports the managerial interest hypothesis.

We identify a number of issues that could raise concerns related to endogeneity or to other econometric biases. First, parachutes are endogenously chosen which introduces the potential of self-selection bias. Second, since firms do not randomly become takeover targets, our analyses might be vulnerable to sample selection bias. Third, because industry and/or time trends could affect the incidence of mergers and the way executive compensation is structured, our tests might be prone to omitted variables bias. Fourth, since a parachute is a common provision in many executive compensation contracts, it is possible that its effect is anticipated and impounded in a target's price. Because of this issue, our analysis could be susceptible to anticipation bias. Fifth, awareness of the premium they could command in an acquisition might dictate how targets structure the merger-related exit pay their CEOs get. Under this scenario, the direction of causality would be reversed.

To address the issues described above, we employ different empirical specifications and econometric methods. Our multivariate tests control for potential endogeneity biases arising from self-selection by using the Heckman (1979) approach. We also use the same approach to address sample selection issues by controlling for the probability that a firm becomes a takeover target. Also, to account for the potential of anticipation bias, we employ the multistage method in Comment and Schwert (1995). Using their approach, we divide the parachute into predictable and surprise components. To control for the possibility of omitted variables bias, our multivariate

analyses consist of year- and industry-fixed-effects regressions.[5] In addition, to address concerns related to reverse causality, we estimate several two-stage instrumental variable systems. The inverse association between parachute importance and takeover premia we document continues to obtain under the different empirical specifications and econometric techniques we employ.

Bargeron, Schlingemann, Stulz, and Zutter (2009) note that CEOs have a potential conflict of interest once their firms become an acquisition target since these executives can bargain for personal benefits rather than for a higher premium for the target shareholders. In a closely related study, Hartzell, Ofek, and Yermack (2004) provide evidence related to this conflict. They find that targets earn lower takeover premia when their CEOs get additional payments during merger negotiations. Target boards provide the additional payments by authorizing a special merger bonus or by amending a parachute provision in order to increase its value. In contrast, unlike Hartzell, Ofek, and Yermack (2004), the parachutes we study are those in place in the CEOs' compensation contract *prior* to their firms becoming a takeover target.

This paper adds to our understanding of the wealth effects and incentives of merger-related exit compensation to target CEOs. Our results indicate that as the importance of the golden parachute to target CEOs increases target shareholders earn lower premia. Therefore, these findings suggest that the level of importance of parachutes to target CEOs may induce these executives to compromise the interests of the target shareholders during acquisitions. Given the moral hazard problem that arises during takeovers, this result has direct implications for the way top-management compensation contracts are structured.

[5] Hausman and Taylor (1981) argue that the fixed-effects specification provides a common, unbiased method to control for omitted variables in a panel data set.

The paper proceeds as follows. Section I provides a background on parachutes and develops our hypotheses. Section II describes our data. Section III contains our empirical analyses. Section IV addresses a number of robustness issues. Section V presents our conclusions.

I. Background on Golden Parachutes and Hypotheses Development

A. Golden Parachutes: Nonacademic Evidence

In recent years, golden parachutes have prompted significant public attention and caused some investors concern. Such concern is understandable since, under parachute agreements, executives are assured pay benefits well into the millions without requiring successful performance in order to collect these awards. A 2007 study of 137 large U.S. corporations by Equilar Inc. finds that 82% of these firms have parachute provisions in place for their CEOs. That study notes that such provisions are a key part of their median sample severance package which is worth $29 million. Recently, the business press documents some high-profile cases in which executives such as Carly Fiorina of Hewlett-Packard, Robert Nardelli of Home-Depot, Stan O'Neal of Merrill Lynch, and Charles Prince of Citigroup reportedly cashed in hefty parachutes while the companies under their stewardship lost millions of dollars and thousands of workers were laid off.[6]

In response to such incidences, law makers have asked regulators to reduce these payments to avoid "rich severance packages for failed executives." As a result, under the new rules, U.S. banks and car manufacturers receiving funds from TARP can only give their top executives

[6] See, for example, "Theory and practice: companies cut holes in CEOs' golden parachutes; New disclosure rules prompt more criticism of guaranteed payouts," *Wall Street Journal*, New York, September 15, 2008; and "When madmen reign," *New York Times*, New York, September 29, 2008.

parachute payments up to one time the executives' previous cash compensation.[7] This provision lowers the parachute multiple of three which is customary in these industries[8].

At the time of this writing, Congress is considering requiring shareholder votes on golden parachutes as part of the current financial reforms.[9] While this law will encumbrance financial companies, it is possible that such requirements will prompt non-financial firms to overhaul their own parachute provisions. Indeed, some prominent firms (such as Colgate-Palmolive, 3M, and Chevron) have already imposed limits on parachute payments for their executives. Nonetheless, other companies (such as Nabors Industries and Textron) oppose such limits arguing that parachutes help keep their compensation at competitive levels.[10]

B. Golden Parachutes in Acquisitions: Academic Evidence

A golden parachute is a clause in an executive's employment contract specifying benefits that s/he will receive in the event that the company is acquired and/or the executive's employment is terminated.[11] These benefits are often based on the regular cash and bonus paid to the executives. Previous research studies the reasons why firms adopt these plans. Knoeber (1986) and Berkovitch and Khanna (1991) view golden parachutes as implicit deferred compensation, already earned but not yet received, that promotes managerial human capital investment in the firm. Jensen (1988) states that severance packages are used to compensate managers for the loss

[7] See, for example, "US bank chiefs face $500,000 limit," Financial Times, London, February 5, 2009.
[8] As we later note, the actual distribution of the multiple used, exhibits a wide range of values, with over half of the sample having multiples larger than 2.99.
[9] See, "US Senators Agree To Shareholder Vote On Golden Parachutes." Dow Jones Newswire, June 22, 2010. http://www.automatedtrader.net/real-time-dow-jones/744/-us-senators-agree-to-shareholder-vote-on-golden-parachutes.
[10] See "Proxy firm targets practice of paying executives' tax bills," *Wall Street Journal*, November 24, 2008.
[11] Employment might cease under a change in control. Instances may include an acquisition of the firm in which the company is not the continuing corporation, or a sale, lease, exchange or transfer of all the assets of the company.

of their jobs in the event of an employment termination. He argues that if correctly implemented, golden parachutes can help reduce the conflict of interest between shareholders and managers.

B.1. Do Parachutes Induce/Deter Takeovers?

Dann and DeAngelo (1983, 1988) suggest that golden parachutes might be a symptom of managerial entrenchment. Another view is that firms adopt golden parachutes as an anti-takeover protection mechanism. In fact, the presence of a parachute is one of the 24 anti-takeover provisions tracked by the RiskMetrics and indexed by Gompers, Ishii, and Metrick (2003). While such provisions may increase a firm's ability to defeat a takeover offer (Malatesta and Walkling, 1988), they could also enhance a target's bargaining position with the bidder (Comment and Schwert, 1995).

Lambert and Larcker (1985) argue that the market perceives the adoption of golden parachute provisions as a signal of possible takeover attempts. Nonetheless, the empirical evidence related to the parachutes' effect on takeover probability is mixed. Machlin, Choe, and Miles (1993) show that the adoption of a golden parachute provision is associated with a greater likelihood of a successful takeover. In contrast, Cotter and Zenner (1994) find that potential wealth increase from managers' equity ownership, rather than golden parachute payouts, affects the probability of an acquisition.

B.2. Golden Parachutes and Target Shareholder Wealth

Harris (1990) models the role of golden parachutes during mergers. She theorizes that by awarding the target manager a parachute of the *optimal size*, target shareholders can maximize their takeover gains. Harris argues that without such proper incentives, target managers may reject bids that increase shareholder value due to their potential losses in compensation and other

executive benefits. The existing empirical evidence supports Harris's predictions. Walkling and Long (1984) show that managers' resistance to takeover bids is related to the effect of the acquisition on their personal wealth. Golden parachutes are designed to reduce such resistance. Related to this, Lambert and Larcker (1985) find positive investor reactions upon the announcement of parachute adoptions during 1975-1982. They view this finding as evidence consistent with the *incentive alignment hypothesis* of golden parachutes.

B.3. Golden Parachutes and Target CEO Wealth

Almazan and Suarez (2003) theorize that depending on the quality of board monitoring, severance pay may benefit managers and shareholders. However, if the size of parachutes is not optimal (Harris, 1990) and board monitoring is weak, the target CEOs receiving parachutes may deviate from maximizing the wealth of their shareholders when their firms are sold. Under this view, commonly referred to as the *managerial interest hypothesis,* golden parachutes provide a vehicle for self-serving managers to increase their own wealth.

Previous research documents that target managers may engage in self-dealing at the expense of the target shareholders. Lefanowicz, Robinson, and Smith (2000) analyze 306 completed acquisitions during 1980-1995 and find that golden parachutes moderate the tendency of target managers expecting large wage losses from a merger to negotiate better offers for their firms. Hartzell, Ofek, and Yermack (2004) study 311 completed acquisitions during 1995-1997. They show that target CEOs may accept lower takeover premia when they receive large cash payments in the form of special bonuses or increased golden parachutes during merger negotiations. As we note earlier, the golden parachutes we study are those in place prior to the start of merger negotiations.

B.4. Parachutes Proxies in the Extant Literature

For reference, Table I presents information on selected published studies of golden parachutes. The table reports the empirical proxies used to identify or value the parachute as well as the hypotheses tested by each paper. A central tenet of our paper is that the moral hazard faced by target CEOs is more likely to be influenced by the relative, not absolute, importance of parachutes to the executive. Some empirical papers do use relative measures of golden parachutes but not relative to an executive's personal wealth changes. Cotter and Zenner (1994) find that the size of golden parachute payments relative to the targets' market capitalization is unrelated to the acquisition premia. In contrast, Machlin, Choe, and Miles (1993) find the opposite result. Lambert and Larcker (1985) argue that the parachute size relative to the target size captures the increased acquisition costs to target shareholders arising from the parachute payments. We argue that standardizing parachute size by changes in CEO wealth captures the tradeoffs to the target CEOs making acquisition decisions. This issue is important because parachutes are purportedly aimed at aligning the incentives of managers and shareholders.

C. Hypotheses

As the review in the preceding sections shows, the existing literature studies theories of incentive alignment and managerial interest to explain golden parachutes. We believe that a key element to help disentangle these alternatives relates to the tradeoffs managers face as inherent in Harris's (1990) discussion of the optimal size of the parachute. Nevertheless, we do not attempt to model the characteristics or amount of the optimal pay package, or measure 'deviations from optimality.' Absent a rigorous theoretical model, the optimal size of a parachute is unobservable. However, the (unconditional) incentives of an executive to sell a firm increase linearly with the

size of the parachute. Despite this relation, as the literature summary in Table I shows, published studies do not capture the effect of parachutes relative to the wealth of top managers. Our study fills this gap in the literature.

Parachutes increase the wealth of a CEO of an acquired firm, but other elements of CEO utility (i.e., loss of control, loss of future compensation) are still negatively impacted when the deal is completed. Because of this imbalance, it is the *relative* importance of the parachute that should be important. Put differently, relative to their total merger pay package and/or their expected personal wealth losses, the same size parachute creates different incentives for different executives. Therefore, in this paper we re-examine the incentive alignment and managerial interest hypotheses of parachutes in the context of acquisitions with variables that measure the relative impact of the parachute on managerial wealth. As described later, we scale the parachute payment by the value of the merger pay package to the target CEO and by the expected wage losses the executive will incur once the firm is sold, respectively. We believe that our empirical strategy is important in recognizing the balance of incentives intrinsic in the design of parachutes.

II. Data and Sample Characteristics

A. Sample Information

We begin with a base sample of 4,381 mergers and acquisitions announced during 1999-2007 and tracked in the Securities Data Company's (SDC) Merger and Acquisition database. We require the target to be a publicly traded U.S. company and exclude spinoffs, recapitalizations, exchange offers, repurchases, self-tenders, privatizations, acquisitions of remaining interest,

partial interests or assets, and transactions with deal value less than $1 million. From this group, we keep 3,521 deals in which target firms have stock return and accounting data available from the Center for Research in Securities Prices (CRSP) and Compustat, respectively. We lose 278 deals because premium data are missing from SDC and from other sources such as CRSP, LexisNexis, or Factiva. After filtering out deals in which governance data for target firms are not available from RiskMetrics, our final sample consists of 851 offers. In unreported tests, we find that the characteristics of our final sample with regard to deal completion, cash deals, tender offers, friendly deals and same industry deals is comparable to those of SDC.

B. Target and Deal Characteristics

We report the offer characteristics for our sample in Panel A of Table II. Among the 851 transactions, about 18% are tender offers and 7% are hostile takeovers. These statistics compare favorably to those in Officer (2003). His sample of acquisitions during 1988-2000 consists of about 20% tender offers and 8% hostile deals. Similar to Moeller, Schlingemann and Stulz (2005), almost 55% of the transactions in our sample are paid in cash. We find that almost 34% of the transactions are conducted using auctions and in over 39% of all deals the target firm initiates the sale. Aktas, de Bodt, and Roll (2010) find that in about 42% of the cases they study target firms initiate the merger. Deals in our sample have a completion rate close to 88%, which is similar to that in Song and Walkling (2007). They report a completion rate of 86% in their merger sample during 1985-2001. Following Boone and Mulherin (2007), we read the S-4, DEFM14A, SC-TO, and DEF14A proxies filed with the Securities and Exchange Commission (SEC) by the target and/or acquiring firms. From these proxies we obtain information on the sale procedure, the party that initiates deal negotiations, and the time merger negotiations begin.

Panel B of Table II contains key financial characteristics for the target firms in our sample. For these companies, the average (median) market value of equity is $3.302 billion ($0.991 billion) and leverage accounts for 26% (25%) of total assets. These statistics are comparable to those of Boone and Mulherin (2007) who report a mean market capitalization of $2.7 billion and Bates and Lemmon (2003) who report an average leverage of 23.3%. In addition, targets in our sample have a median market-to-book equity ratio of 1.42, which is close to the ratio of 1.69 reported by Officer (2003). Grinstein and Hribar (2004) report a mean deal value of $4.7 billion for transactions which is similar to the $4.76 billion mean value in our sample.

C. Target CEO Characteristics

In Panel C of Table II, we report the target CEO's characteristics. On average, 57% of all CEOs also chair their boards and almost 13% are firm founders. The average (median) CEO is 54 (55) years old, owns 4.6% (1.8%) of the firm's common equity, and has been the chief executive for about 7 (5) years. These characteristics are in line with those in Hartzell, Ofek, and Yermack (2004) who report the following CEO statistics: median tenure of 5 years, mean age of 54, and average equity ownership of 3.6%.

We collect compensation data from proxy statements filed by each target with the SEC. In some instances, we supplement these data with information in the Execucomp database. Key compensation characteristics for target CEOs in our sample appear in Panel D of Table II.

Bebchuk and Grinstein (2005) report an average of $5.01 million in total CEO compensation.[12] During the last year in office prior to the deal, the average CEO in our sample earns $5.4 million in annual total compensation, 33% of which comes from stock-option pay. As

[12] They report an average total compensation of $9.41 million for CEOs of S&P500 firms, $3.94 million for CEOs of MidCap400 firms, and $2.05 million for CEOs of SmallCap600 firms during 1993-2003.

we note earlier, CEOs that sell their firms forfeit the compensation they would earn if they were to remain in office. To calculate the expected lost pay for the target CEOs we use information on their compensation, their restricted stock, and their option holdings as reported in proxy statements before the merger announcement. We make a number of assumptions to estimate the expected lost compensation. First, following Hartzell, Ofek, and Yermack (2004), we assume that all CEOs retire by age 65 and that CEOs who are at least 65 years old expect to stay in office one more year before retiring. Second, following Yermack (2004), we assume that the probability of departure increases by 4% each year due to acquisitions, delistings, or other turnover reasons. Third, we assume that salary and bonus would increase by 2% from that received during the year prior to acquisition when firm performance is above the Fama and French (1997) median industry ROA. This assumption follows Bebchuk and Grinstein (2005), who report a 40% increase in salary and bonus for the period 1993-2003. Fourth, we assume that the probability of departure increases by an additional 2% the company performs below the industry median. Finally, we use a real rate of 3% to discount cash flows. Fich and Shivdasani (2007) estimate that the present value of lost income for CEOs expected to remain in office for another seven years is $45.5 million. We estimate that, on average, the present value of the expected lost compensation for target CEOs in our sample is close to $40 million. Given our estimates, it appears that employment termination due to an acquisition triggers non-trivial wealth losses for target CEOs.

D. Merger-Related Pay for Target CEOs

Many boards of directors provide parachutes to their CEOs. We obtain information on these payments from the last proxy filed by the targets prior to the merger announcement, the S-4

proxy filed by the acquirers, and/or the DEFM14A proxy filed by the targets following the merger announcement. Among the 851 targets, 735 (or about 86%) have a golden parachute in place for their CEOs before merger negotiations begin.[13] From the target CEO's employment agreement, we are able to estimate the size of the parachute. Specifically, when a parachute is provided, the employment agreement often stipulates that the parachute payment is based on a multiple of the executive's regular cash compensation. Panel D of Table II shows that the mean (median) parachute payment is $4.873 million ($2.553 million).

Section 280G of the Internal Revenue Code (IRC) states that: "if the present value of a change-in-control payment (parachute) exceeds the safe harbor (three times the average taxable compensation over the five most recent calendar years preceding the change-in-control, less $1), the company loses tax deductions for these excess amounts. Additionally, the executive is required to pay a 20% excise tax on the excess payment." Given this tax rule, it would be reasonable to assume that most firms would set the multiple used to value a parachute to three. However, in our sample this multiple exhibit considerable variability. According to the information related to the multiple in Panel D of Table II, half of our target firms use a multiple higher than 2.99. In fact, in our sample, the highest parachute valuation multiple equals 5.25.

Following Hartzell, Ofek, and Yermack (2004), we estimate the target CEO's total merger pay package by adding all the payments the executive receives when the deal is completed. Specifically, this package includes common equity and stock option appreciation, the golden parachute, and, in some instances, a special merger bonus. Equity based appreciation accounts for more than two thirds of the package and parachutes comprise almost one third of the merger

[13] We follow the procedure in Boone and Mulherin (2007) to identify the start of merger negotiations.

pay package for the average target CEO in our sample. The average merger pay package drawn by target CEOs in our sample is worth almost $36 million.

E. Measures of Parachute Importance

The stated goal of golden parachutes is incentive alignment. But parachutes are only one part of a CEO's pay package and to truly measure alignment we must consider the relative incentives of the entire package. Some elements of the pay package (equity, options and probably merger related bonuses) increase directly with the size of the premia offered to the targets. Other elements are likely to decrease with the completion of a deal and are invariant to the size of negotiated premia (e.g. the loss of future salary). Golden parachutes are triggered by a change in control and are also unrelated to the size of the negotiated premia. Obviously, a trivial parachute relative to a large loss in future compensation is unlikely to motivate an executive to consent to a takeover of his firm. Conversely, an overly generous parachute relative to other elements of the pay package could induce a rush to sale without adequate concern for the premia offered. Consequently, in order to truly gauge incentive alignment, it is necessary to consider parachutes relative to the different components of the entire pay package.

Parachute payments mitigate any wealth losses target CEOs incur when their firms are sold. These losses arise because, in most cases, targets CEOs lose their jobs as their firms cease to exist as a standalone entity. As a result, parachutes might be particularly important for CEOs expected to remain in office if their firms are not sold. Income losses are likely to be more acute for these executives. This phenomenon provides an additional rationale for examining the importance of golden parachutes relative to the expected value of lost income for target CEOs if their companies are acquired.

The above discussion suggests that parachutes might play an important role in the welfare of target CEOs when their firms are sold. In this paper, we propose two measures of their relative importance. The first is the proportion of the parachute value in the total merger pay package. Our second measure is the value of the golden parachute divided by the compensation target CEOs expect to forego when their firms are acquired.

Table III, Panel A shows summary statistics for our two measures of parachute importance. The average (median) golden parachute covers 30.5% (23.1%) of the total merger package to target CEOs when the deal is completed. The average (median) golden parachute represents 25.2% (12.3%) of the expected lost compensation to target CEOs. In Panel B and Panel C of Table III, we show the variation of parachute importance together with the distribution of our sample over time and across industries, respectively. The two measures of parachute importance are generally stable over time, albeit slightly larger in 2002. The annual number of mergers is higher at the beginning and the end of our sample period, which coincides with periods of economic expansion when the stock market valuation is higher. Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) show that stock market health drives merger activity. The temporal distribution of our sample appears in line with the merger activity reported in these studies. We do not find any significant variation in the parachute importance across industries, except that parachutes seem to be particularly important in the utilities industry. The industrial distribution of our sample is also similar to that in other research in merger and acquisitions and to the actual distribution in the base sample from SDC. For example, Officer (2003) reports that 2.03% of his sample are firms in durable consumer goods, 17.40% in business equipment, 7.81% in shops, and 4.62% in chemicals. The percentage of targets in our sample that belong to those

same industries is quite similar: 2.70%, 20.09%, 9.99%, and 2.12%, respectively. In addition, the base acquisition sample from SDC has 22.59% of targets in business equipment, 3.84% in telecommunications, and 8.86% in the healthcare industry. Analogously, the incidence in our final sample is 20.09%, 4.00%, and 8.93% for those same industries, respectively.

III. Empirical Analyses

A. Determinants of Parachute Importance

In Table IV, we run a set of four Tobit models to study the importance of golden parachutes for target CEOs in our sample.[14] In the first two columns of the table, we use the size of the golden parachute relative to the entire merger pay package as the dependent variable. In the last two columns, we use the ratio of the golden parachute's size to the present value of lost compensation to the CEO as the dependent variable. The regressions control for various target, CEO, and governance characteristics which could affect the relative importance of golden parachutes; these are defined in the legend accompanying Table IV. All models include year and industry-fixed effects.

Our results indicate the materiality of parachutes relative to all merger-based-pay decreases: (a) in larger firms where, as previous research shows,[15] CEOs often get paid more; (b) in companies with high growth opportunities where equity-based pay might be more valuable; and (c) in organizations in which the CEO is the founder. The results in model (1) of Table IV imply that the importance of parachutes increases by 2 percentage points when the CEO is also the chairman. This result appears consistent with the conjecture that more powerful CEOs receive

[14] We run Tobit models because our measures of the relative importance of parachutes are left-hand censored.
[15] See, for example, Baker (1939), Murphy (1998), and Frydman and Saks (2007).

larger parachutes. Other estimates imply that parachute importance increases by about 3 percentage points with a one standard deviation increase in the Gompers, Ishii, and Metrick (2003) G index: firms with greater takeover defenses are more likely to have greater parachutes as part of the merger-related pay.

B. Parachute Importance and Merger Completion

In Table V, we examine the relation between parachute importance and deal completion. One presumes that completed deals are beneficial to target shareholders since premia are generally paid and in the case of mergers and tender offers the target shareholders have the option of not approving the deal. Nevertheless, an improperly designed parachute could cause an executive to either push for or against deal completion regardless of the premia offered to target shareholders. In Table V, we report the estimation of four variants of a fixed-effects logit model in which the dependent variable equals "1" for completed deals and "0" for withdrawn deals. Officer (2003), Bates and Lemmon (2003) and Walkling (1985) estimate similar models. Therefore, the control variables in our regressions are similar to theirs. The exceptions, of course, are our proxies of parachute importance. Because golden parachutes are endogenously determined, in models (1) and (3) of Table V we control for endogenous self-selection by using the Heckman (1979) inverse Mill's ratio (λ_1). Moreover, since firms do not randomly become takeover targets, in models (2) and (4), we control for sample selection by using a different inverse Mill's ratio (λ_2) based on a regression of the probability of becoming an acquisition target.[16]

[16] The Parachute Heckman self-selection and the Target Heckman self-selection involves a first-stage estimation of the probability of having a golden parachute and the probability of being a target, respectively We report these first-stage models, both of which are estimated in a sample of 14,157 firm-years, in Table AI of the Appendix. In the second stage, the inverse Mill's ratio from the first stage model is included in the estimation as a variable to control for endogenous self-selection.

Consistent with the literature, we find that deals are about 9.11 percentage points more likely to materialize if there is a target termination fee. This marginal effect is comparable to that of 11 percentage points in Officer (2003). Tender offers are 4.5 percentage points more likely to go through, as are mergers in which the parties to the deal are in the same industry. Deals are less likely to be completed if there is prior bidding or if the deal is hostile. These results are similar to those in Bates and Lemmon (2003).

Of primary interest is the result that deal completion increases with the importance of the parachute. The marginal effects implied by the estimates in Table V indicate that a one standard deviation increase in parachute importance raises the probability of deal completion by over 6 percentage points. This finding could be consistent with the incentive alignment hypothesis in that executives are less likely to oppose or derail a deal if they have more to gain personally from its completion. Nevertheless, deal completion is necessary for the target CEO to cash in the parachute and the parachute payment is not based on the acquisition price the target receives. Because of these issues, the positive relation of the parachute to deal completion could also be consistent with the managerial interest hypothesis.

C. Parachute Importance and Acquisition Premia

We use the four-week premium reported by SDC,[17] as the dependent variable in a set of ten regressions similar to those in Walkling and Edmister (1985) and in Bargeron, Schlingemann, Stulz, and Zutter (2008). These premium regressions are reported in Table VI. The independent variables of interest are five different proxies based on the golden parachute payment to the target CEO. These variables are: in model (1), the value of the parachute divided by the merger

[17] Following Officer (2003) we restrict this premium measure to 2 (or 200%) to avoid extreme outliers.

pay package; in model (2), the value of the parachute divided by the present value of the expected lost compensation to the target CEO; in model (3), a dummy variable set to "1" if the CEO's compensation contract includes a parachute provision; in model (4), the natural logarithm of the payments we identify as golden parachute compensation; and in model (5), the multiple used to calculate the value of the parachute. Although the first two proxies are designed to measure the impact of the parachute on the target CEO's wealth, all of these proxies measure the importance of the parachute. For each proxy, we estimate the premium regression model twice: once controlling for self-selection and then controlling for sample selection. All other independent variables are defined in the legend accompanying Table VI.

The coefficients in model (1) of Table VI document an inverse association between parachute importance and premia. According to the estimates in model (1), a 10 percentage point increase in parachute importance is associated with a decline in premia of 4.97 percentage points. This decline is economically meaningful: for the average target in our sample the lower premia imply a shortfall of about $249 million in terms of deal value. Consequently, our findings document severe wealth effects for shareholders in these targets.

Are the results in model (1) of Table VI driven by the fact that the offer price is used to value the equity components of the merger pay package? To address this issue and purge the offer price from the merger pay package, we record each target's stock price six weeks prior to the start of merger negotiations. We use this price and the Black-Scholes methodology to value all the stock options held by the target CEO. Similarly, we use this price to value all stock and restricted stock owned by the target CEO. With these new values, we re-estimate the dollar amount the merger pay package is worth six weeks prior to the start of merger negotiations.

Finally, we standardize the parachute by this alternative estimate of the merger pay package. This ratio becomes the key dependent variable in two untabulated regressions similar to those in model (1) of Table VI. The results from these tests generate inferences similar to those tabulated: higher parachute importance is associated with lower premia.

The estimates in model (2) of Table VI indicate that a one standard deviation increase in parachute importance is associated with a decrease in premia of 2.38 percentage points. Such drop in premia translates to a decline of $116 million in terms of deal value. Therefore, the result related to lost compensation also indicates that as the relative importance of the parachute increases, acquisition premia to the target decrease. We note that because the offer price is not used to value the expected lost pay to the CEO, these results are immune to concerns about the offer price driving our findings. Harris (1990) theorizes that a golden parachute that is too generous can lead target managers to accept takeover bids that may not increase their shareholders' wealth. The evidence we present appears to conform to her theories.

The coefficients related to the other parachute proxies in models (3), (4), and (5) are also negative and significant. The estimates in model (3) indicate that when the parachute has zero importance to the target CEO takeover premia increase by 6.2 percentage points. The estimates in model (4) imply a drop in premia of 4.84 percentage points for a $1 million dollar increase in the value of the parachute. According to model (5), targets experience a 1.7 percentage point decline in premia for a one unit increase in the parachute multiple. Consequently, the estimates related to the proxies in models (3), (4), and (5) also document an inverse association between parachute importance and takeover premia. However, the interpretation that arises from these proxies is not as economically informative as that arising from the proxies in models (1) and (2).

This occurs because controlling for the presence or value of a parachute does not capture the way these payments incentivize target CEOs. Moreover, it is possible that parachutes of the same value (or those calculated with the same multiple) deliver very different incentives. Therefore, by standardizing the value of the parachute by measures related to the target CEO's wealth we are able to more accurately assess the economic effects of parachutes during acquisitions.

The estimates of the other independent variables in Table VI are consistent with the existing literature. For instance, we also find that acquisition premia increase with recent excess returns, liquidity, and in deals structured as cash offers and/or tender offers. Bid premia also increase with rumors, prior bidding, and the existence of a target termination fee. Bid premia decrease with the size of the target firm, CEOs near retirement age, and acquisitions by private acquirers.

D. Simultaneous Regressions of Parachute Importance and Bid Premia

An important test of the incentive alignment vs. managerial interest hypotheses is the relation of the parachute to premia paid in the acquisition. The analyses in Table VI document an inverse association between parachute importance and takeover premia. This result of appears opposite to the incentive alignment hypothesis of golden parachutes. However, firms expecting a low premium if they become takeover targets might provide a more generous (and important) parachute to their CEOs. Under this possibility, the direction of causality would be reversed and the results in Table VI are not necessarily inconsistent with the incentive alignment hypothesis.

To address whether the endogenous choice between parachute importance and deal premia affects the results presented in Table VI, we estimate systems of simultaneous equations following the methodology outlined in Maddala (1983). In each system, bid premia and the parachute proxy are provided as the two endogenous variables. The parachute variable and bid

premia instruments are estimated from first-stage regressions using all of the control variables in the two equations. The second-stage tests consist of an OLS regression of bid premia on the parachute instrument and another regression where the dependent variable is the parachute proxy and the key independent variable is an instrument for the bid premia. The standard errors in these regressions are adjusted for the fact that the instrumental variables for the parachute and bid premia are estimated.

To identify the simultaneous system, we must exclude one exogenous variable from each of the two second-stage regression equations. For the parachute equation, we must satisfy the *relevancy condition* with a variable that is correlated with the parachute after controlling for all other exogenous variables. The same variable will satisfy the *exclusion restriction* if it is uncorrelated with the error term of the second-stage premium regression. For this variable we use the CEO founder (0,1) dummy. Table IV indicates that this variable is significantly related to our parachute proxies. Prior research by Moeller (2005) and the estimates in Table VI indicate that the founder (0,1) dummy is unrelated to premia. For the premium equation, the variable that we use is the target's excess stock returns during the year prior to the acquisition. This variable appears to satisfy the relevancy condition and the exclusion restriction. A recent study by Aktas, deBolt, and Roll (2010), as well as results in Table VI, shows that a target's prior excess return is related to the bid premium. Evidence in Table IV and Table AI indicates that the excess return variable is not related to parachute importance.

Table VII presents our simultaneous equations analyses. In Panel A of Table VII we use the importance of the parachute relative to the lost compensation as our proxy for the parachute. In that panel, we report the two first-stage regressions as well as the two second-stage regressions.

After accounting for endogeneity, the parachute instrument in the second-stage premium regression is negative and statistically significant. In contrast, the premium instrument in the second-stage parachute regression is not significantly different from zero. This last result indicates that bid premia are unrelated to the importance of the parachute and provides no evidence of causation running in the reverse direction.

In Panel B of Table VII we use the other four parachute proxies described earlier. For each of these proxies, we also estimate a simultaneous system consisting of two first-stage and two second-stage regressions. However, to conserve space, we only report the two second-stage regressions for each system. The tests in Panel B of Table VII also document an inverse and statistically significant association between the golden parachute instrument and bid premia. The same tests also reveal no association between the premium instrument and the golden parachute variables. Collectively, the findings of our simultaneous equations analyses also support the managerial interest hypothesis of parachutes.

E. Anticipation Effects of Golden Parachutes on Bid Premia

It is no surprise to the market that many firms offer parachutes to their CEOs. Therefore, the anticipated effect of a parachute would be incorporated in stock prices and takeover premia. To recognize this, we follow the methodology of Comment and Schwert (1995) and replace the (0,1) indictor for the presence of a parachute with variables related to the anticipated and surprise components of the parachute. These components are estimates from the parachute prediction regression reported as model (1) of Table AI. We estimate this prediction regression in a sample of 14,157 firm-years with data available from CRSP, Compustat, and RiskMetrics during 1999-2007. The predictable component is an estimate of the probability that the target CEO's

compensation contract includes a parachute provision. The surprise component is computed as the parachute indicator minus the estimated probability that the target CEO has a golden parachute.

Table VIII presents two regressions of the takeover premium in which the parachute components are the independent variables of interest. For reference and in the spirit of Comment and Schwert (1995), in both tests we include the estimate for the golden parachute dummy from separate similarly structured premium regressions that do not include the golden parachute components.

The coefficient on the surprise parachute variable in Table VIII is negative and significant, indicating that the unanticipated effect of a parachute is associated with lower bid premia. In contrast, the predictable parachute component does not attain statistical significance in the regressions in Table VIII. Therefore, the most we can conclude is that the known existence of golden parachutes is already impounded in a target's value. Nonetheless, this conclusion is important because it validates the view that it is not the mere presence of a parachute, but its relative importance to the target CEO, that matters. Put differently, whereas markets know that target CEOs have parachutes before a merger, it is impossible for markets to anticipate the relative importance of a parachute absent foreknowledge of the terms of the deal. Consequently, it is plausible that the unanticipated negative effect captured by the surprise parachute variable in Table VIII reflects the amount by which parachutes wind up insulating target CEOs from personal losses. Under this view, the surprise parachute variable identifies the degree to which the target CEO is susceptible to moral hazard.

IV. Additional Tests

A. Takeover Premia Alternatives

The estimates presented in Tables VI, VII and VIII are based on the four-week premium reported by SDC. We re-estimate all premia using the combined premium method in Officer (2003). Following his approach, we first estimate a premium based on "component" data using the aggregate value of cash, stock, and other securities offered by the bidder to target shareholders as reported by SDC. We then estimate premia based on "initial price" and "final price" data based on the initial offer and final offer price, respectively. These prices are also reported by SDC. All three premium measures are deflated by the target's market value 42 trading days prior to the bid announcement. The "combined" premium is based on the "component" measure if it is greater than 0 and less than 2; otherwise the premium relies on the "initial price" measure (or on the "final price" measure if initial price data are missing).

Using the combined premium, the multivariate results in Table VI are as follows. In model (1A), the coefficient on the importance of the parachute relative to the merger pay package (GP/MPP) is -0.549 (p-value <0.001).[18] The marginal effect associated with this estimate implies that a 10 percentage point increase in parachute importance causes target firms to earn a premium 5.49 percentage points lower. This shortfall triggers a decline of $276.39 million in deal value for the average sample target. This result is similar to those tabulated.

We also replace the four-week premium with the cumulative abnormal return (*CAR*) accruing to sample targets running from 20 days before the deal announcement (AD-20) until the day after

[18] With regards to Table VI, model (2A), the coefficient on Parachute / Lost compensation is -0.069 (p-value = 0.056). This estimate implies that a one standard deviation increase in parachute importance causes target firms to earn a premium that is 3.10 percentage points lower.

(AD+1). Using the *CAR* (AD-20, AD+1) as the premium proxy, the results in Table VI generate inferences similar to those reported. For example, in model (1A) of the table, the coefficient on GP/MPP changes to -0.274 (*p*-value <0.001). This estimate implies that a 10 percentage point increase in parachute importance is associated with a decrease in deal value of $134.04 million.

B. Tax Regulations and the Sarbanes-Oxley Act

On February 19, 2002, the Internal Revenue Service proposed new regulations to Section 280G of the Internal Revenue Code (IRC).[19] The new regulations provide amendments and clarifications to the regulations issued on May 5, 1989, and apply to golden parachutes payments occurring on or after January 1, 2004. The amendments clarify that the safe harbor related to change-in-control payments is three times the average taxable compensation over the five most recent calendar years prior to the change-in-control. The amendments also states that a company that exceeds the safe harbor will lose tax deductions for the excess amounts and that the executive would be liable for a 20% excise tax on the excess payment.

A 2008 study by RiskMetrics finds that the new tax regulations have done little to reduce golden parachute payments.[20] In particular, the study reports that two-thirds of the companies in the S&P 500 index disclose that they would provide excise tax gross-ups to one or more top executives. The excise tax gross-ups essentially free the executive from personally paying the excise tax on excess parachute payments. The RiskMetrics study shows that excise tax gross-ups are a costly benefit, since it generally takes at least $2.50 and as much as $4 to cover each $1 of excise tax that must be "grossed-up." In addition, other companies that do not provide the gross-

[19] See: REG-209114-90 at http://www.irs.gov/pub/irs-regs/20911490.pdf

[20] See: "Gilding Golden Parachutes: the Impact of Excise Tax Gross-Ups" by Kosmas Papadopoulos at http://www.riskmetrics.com/docs/2008ExciseTax

up benefit may increase parachute payments in order to mitigate the excise tax to their executives. For our purposes, it is possible that the new Section 280G rules may have affected the size of golden parachutes, and, in turn, the relative importance of these payments.

To investigate the potential effect of the new tax rules on parachutes, we revisit the regressions reported in Table IV related to the relative importance of parachutes. In model (1) of the table, we include a dummy variable for deals initiated after February 19, 2002. The estimate for this variable (0.048, *p*-value = 0.026) indicates that parachute importance relative to the merger pay package increases by about 4.8 percentage points. While this result is consistent with the idea that some firms increase parachutes in response to the new proposed tax rules, alternative explanations are possible. For instance, as a result of the new rules contained in the Sarbanes-Oxley Act of 2002, many firms curbed the equity-based pay given to top managers while increasing their base salary (Chhaochharia and Grinstein, 2009). This pay redistribution could partially account for the increase in importance of golden parachutes we uncover after 2002.

C. Changes of Parachute Importance during Merger Negotiations

The vast majority of parachutes we examine are in place in the CEOs' compensation contract *before* their firms become takeover targets. We note that 116 out of 851 target CEOs in our sample (about 14%) do not have a parachute prior to the start of merger negotiations. However, 23 of the 116 firms that do not offer a parachute put one in place once merger talks begin. In addition, 30 of the 735 firms that do have parachutes for their CEOs raise their value during merger negotiations. Removing these 53 observations from our sample does not alter our results. In addition, we run a premium regression similar to those in Table VI in which the key

independent variable is a dummy that is "1" if targets either augment the size of an existing parachute or put one in place (the 53 cases described above). The estimate for this variable is negative but not statistically significant. This result is similar to that in Hartzell, Ofek, and Yermack (2004).

Even if parachutes are not revised, their relative importance could fluctuate when other parts of the merger pay package change during deal negotiations. For example, an unexpected alteration of the equity ownership and/or the option grants held by the target CEO could change the relative importance of the parachute. To consider this issue, we create a (0,1) variable that is set to "1" if, during merger negotiations, the target CEO's receives stock, restricted stock, or stock option grants. We re-estimate the premium regressions in Table VI with this indicator as an additional control variable. The results related to our golden parachute proxies are robust to the inclusion of this variable to the tests. For instance, with the new control variable in the regression, the estimate on the GP/MPP variable changes from -0.497 (p-value < 0.001) to -0.489 (p-value < 0.001).

D. Target CEOs near Retirement

Earlier, we argue that parachutes might be rather important for CEOs expected to remain in office for several years. This argument is based on the idea that these executives will lose the pay and benefits of being CEO when their firms are sold. As a result, parachutes make them partially whole for such loss. A plausible inference related to this argument is that the relative importance of parachutes decreases as the CEO approaches retirement. To the tests reported in Table IV we add an independent variable, labeled "years to retirement," that subtracts the target CEO's age from 65. This variable, which uses the retirement age threshold in Hartzell, Ofek, and Yermack

(2004), is set to "0" for negative values (instances in which the CEO is still in office past the retirement age). The estimate on the years to retirement variable (-0.0196, p-value<0.001) indicates that every year the target CEO approaches retirement raises the importance of the parachute relative to the expected lost compensation by about 1.96 percentage points. This result is consistent with the fact as CEOs approach retirement their expected lost compensation decreases.

V. Conclusions

In recent years, the controversy surrounding golden parachutes has intensified. Opponents of parachutes claim that it is unfair to provide managers with a financial safety net regardless of the fortunes of shareholders. Advocates of parachutes view them as an indispensable part of a competitive compensation package required to attract and retain highly qualified human capital. From an academic perspective, this controversy can be summarized with the following research question: Do parachutes align the incentives of the managers receiving them and the shareholders in the firms that grant them? We frame this question in the context of well-known hypotheses in corporate finance: incentive alignment and managerial interest. We examine these hypotheses in a sample of 851 acquisitions during 1999-2007.

The hypotheses we study continue to receive considerable attention because they are well suited in situations susceptible to agency problems. In our case, the problem is a form of moral hazard. If a parachute insulates target CEOs from a severe personal wealth loss related to a takeover of their firm, they may behave differently than if they were fully exposed to the loss.

Such behavior may be detrimental for shareholders if it generates either a 'rush to sale' or 'unyielding resistance' regardless of the acquisition price offered.

We propose two different proxies to assess the degree by which golden parachutes protect target CEOs from acquisition-related personal losses. The first proxy scales the size of the parachute by the total merger-related pay target CEOs receive; the second scales it by the expected lost compensation target CEOs incur when their firms are sold. These proxies are unlike those in the extant literature that either track the presence of a parachute or appraise the increased acquisition costs related to the parachute. Because our proxies measure the relative importance of the parachute to the target CEO, they provide a new, unique, and economically informative prism to examine our hypotheses.

We show that the motivation to sell a target and complete a deal increases with the relative importance of parachutes. On the surface, this finding appears consistent with the incentive alignment hypothesis. However, because parachute payments are contingent on deal completion it is possible that target CEOs sacrifice premia for personal gain. Consequently, we test our hypotheses by examining the relation between parachute importance and shareholder wealth.

The empirical analyses related to the benefits of parachutes to target CEOs and target shareholders indicate that these payments have a material and diverging effect on the wealth of these parties. Based on our analyses of premia paid for targets in our sample, we estimate that parachutes cost target firms several percentage points in potential acquisition premium. For the average target CEO in our sample, parachutes represent 30.5% or $4.9 million of the pay package the executive receives when the target is sold. In contrast, a 10% increase in parachute importance relative to the merger pay package is associated with a deficit in premia of about 4.97

percentage points. This shortfall implies a reduction of $249 million in deal value for the average acquisition in our sample. Therefore, the financial costs to target shareholders in firms offering overly important parachutes considerably surpass the benefits received by their CEOs. These results, which obtain under different empirical specifications, tests for endogeneity, and controls for other econometric biases, support the managerial interest hypothesis.

Our findings contribute to the ongoing debate over the effectiveness of executive compensation in general and over the effectiveness of golden parachutes in particular. We show that relatively more important parachutes benefit target shareholders by increasing the likelihood that a merger is completed. However, our results also suggest that inappropriately designed parachutes create a conflict of interest between target CEOs and target shareholders at the onset of a merger. In our study, this conflict manifests as moral hazard. Indeed, our analyses indicate that as target CEOs become more insulated from personal losses due to relatively larger parachutes, target shareholders obtain less favorable acquisition terms.

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Table I
Selected Published Academic Studies on Golden Parachutes

This table presents selected empirical studies on golden parachutes. The first column of the Table provides the authors name, the academic journal and year of publication. For each paper, we provide information on the sample size and period examined, the hypotheses tested, and the parachute proxies employed.

Paper	Sample	Hypotheses	Parachute measure(s)	Findings
Lambert and Larcker (*J. of Accounting and Economics* 1985)	*N* = 57-90 deals (1975 – 1982)	Incentive alignment Wealth transfer	GP value / MVE_{target} GP value / # managers with GPs	Alignment
Knoeber (*American Economic Review* 1986)	*N* = 246 (1982)	Incentive alignment Rent extraction	GP dummy	Alignment
Machlin, Choe, and Miles (*J. of Law and Economics* 1993)	*N* = 220-226 (1975 – 1982)	Managerial resistance Incentive alignment	GP value/ MVE_{target}	Alignment
Cotter and Zenner (*J. of Financial Economics* 1994)	*N* = 141 tender offers (1988 – 1991)	Managerial resistance Incentive alignment	GP value	Resistance
Cotter, Shivdasani and Zenner (*J. of Financial Economics* 1997)	*N* = 169 tender offers (1988 – 1992)	Managerial resistance Incentive alignment	GP dummy	Resistance
Agrawal and Knoeber (*J. of Financial Economics* 1998)	*N* = 446 deals (1987)	Rent extraction Incentive alignment	GP dummy	Rent extraction and Alignment
Lefanowicz, Robinson, and Smith (*J. of Corporate Finance* 2000)	*N* = 306 deals (1980 – 1995)	Rent extraction Incentive alignment	GP value / MVE_{target}	Alignment
Hartzell, Ofek, and Yermack (*Review of Financial Studies* 2004)	*N* = 311 offers (1995 – 1997)	Ex-post settling up Agency conflicts	GP augmentation dummy	Settling up and Agency

Table II
Sample Description

This table describes our sample which consists of 851 mergers and acquisitions announced during 1999-2007 and tracked in the Securities Data Company's (SDC) merger and acquisition database in which the target is a publicly traded U.S. company and the deal value is at least $1 million. For selecting the sample, we require that target firms have stock return, accounting, and governance data available from the Center for Research in Security Prices (CRSP), Compustat, and RiskMetrics (formerly the Investor Responsibility Research Center) database, respectively. In Panel A, deal status, mode of acquisition, method of payment, and deal attitude are obtained from SDC. As in Officer (2003), we classify a deal as a hostile takeover if the bid is recorded by SDC as ''hostile'' or ''unsolicited''. Information on sale procedure and initiator is obtained from reading the merger background filed with the SEC. As in Boone and Mulherin (2007), auction refers to cases in which the selling firm contacts multiple potential buyers while negotiation focuses on a single buyer. Initiator is the party that first contacts the other party in the sale process. A deal is in the same industry if both the target and the acquirer belong to the same Fama and French (1997) 48-industry classification. In Panel B, all financial variables are measured at the end of the fiscal year before the merger announcement date. Market-to-book is market value of equity divided by book value of equity. Leverage equals the book value of debts divided by market value of assets. Deal value is obtained from SDC. In Panel C, ownership is the percentage of stock and options owned by the CEO. Market value of ownership is measured as of 20 trading days before the announcement date. In Panel D, compensation data are as of the end of the fiscal year before the announcement date. Merger pay package includes payments from the parachute, common equity, the merger bonus, and stock options. Estimated lost compensation is the estimated present value of the CEO's lost compensation when his/her firm is sold. We obtain information on the golden parachute payment from the last proxy filed by the targets prior to the merger announcement, the S-4 proxy filed by the acquirers, and/or the DEFM14A proxy filed by the targets following the merger announcement.

Panel A: Deal characteristics

	Mean	Median
Completion (0,1)	0.878	
Tender offer (0,1)	0.182	
Stock payment (0,1)	0.162	
Cash payment (0,1)	0.549	
Hostile takeover (0,1)	0.069	
Auction (0,1)	0.337	
Target initiated (0,1)	0.393	
Same industry (0,1)	0.561	
Deal value ($ billion)	4.758	1.544

Panel B: Target characteristics

	Mean	Median
Market value ($ billion)	3.302	0.991
Market-to-book	1.734	1.422
Leverage	0.260	0.248
ROA	0.084	0.074
Age (years)	48.710	33.833
Deal value ($ billion)	4.758	1.544

Panel C: Target CEO characteristics

	Mean	Median
Chairman (0,1)	0.570	
Founder (0,1)	0.128	
Compensation committee member (0,1)	0.013	
Age (years)	54.390	55.000
Tenure (years)	7.165	4.786
Ownership (%)	4.632	1.836
Market value of ownership ($ million)	96.079	22.728

Panel D: Target CEO compensation and golden parachute characteristics

	Mean	First quartile	Median	Third quartile
Salary and bonus ($ million)	1.662	0.636	0.940	1.525
Total compensation ($ million)	5.366	1.170	2.615	5.022
Parachute (0,1)	0.864			
Parachute multiple	2.225	2.000	2.999	3.000
Parachute value ($ million)	4.873	1.482	2.553	4.573
Merger pay package ($ million)	35.972	4.634	9.810	23.876
Lost compensation ($ million)	39.896	7.501	16.387	36.524

Table III
Parachute Importance Characteristics

The sample consists of 851 acquisitions announced during 1999-2007 described in Table II. We use two measures of the importance of parachute for the target CEO: GP/MPP (Parachute/Merger pay package) and GP/LC (Parachute/Lost compensation). In Panel C, we use the Fama French (1997) 12-industry classification.

Panel A: Summary statistics

Parachute importance	Mean	Std. dev.	First quartile	Median	Third quartile
Parachute / Merger pay package	0.305	0.275	0.092	0.231	0.439
Parachute / Lost compensation	0.252	0.449	0.052	0.123	0.248

Panel B: Temporal characteristics

			GP/MPP		GP/LC	
Year	*N*	%	Mean	Median	Mean	Median
1999	160	18.80	0.284	0.232	0.283	0.122
2000	132	15.51	0.242	0.153	0.255	0.119
2001	69	8.11	0.317	0.227	0.214	0.145
2002	29	3.41	0.416	0.341	0.310	0.113
2003	46	5.41	0.290	0.235	0.254	0.124
2004	77	9.05	0.352	0.229	0.201	0.112
2005	97	11.40	0.294	0.249	0.226	0.117
2006	121	14.22	0.336	0.302	0.226	0.135
2007	120	14.10	0.326	0.237	0.291	0.125

Panel C: Industrial characteristics

			GP/MPP		GP/LC	
Industry	*N*	%	Mean	Median	Mean	Median
Nondur. consumer goods	44	5.17	0.251	0.157	0.262	0.104
Durable consumer goods	23	2.70	0.390	0.348	0.201	0.160
Manufacturing	94	11.05	0.343	0.301	0.311	0.158
Energy	43	5.05	0.330	0.263	0.279	0.146
Chemical	18	2.12	0.349	0.225	0.556	0.137
Business equipment	171	20.09	0.271	0.192	0.171	0.071
Telecommunication	34	4.00	0.311	0.180	0.327	0.119
Utilities	49	5.76	0.454	0.392	0.294	0.213
Shops	85	9.99	0.295	0.238	0.235	0.151
Health	76	8.93	0.266	0.211	0.166	0.112
Finance	112	13.16	0.311	0.233	0.359	0.156
Other	102	11.99	0.276	0.143	0.189	0.120

Table IV
Determinants of Parachute Importance

The sample consists of 851 acquisitions announced during 1999-2007 described in Table II. The dependent variable is (Parachute/Merger pay package) in Tobit models (1) and (2), and (Parachute/Lost compensation) in Tobit models (3) and (4). All financial variables are measured at the end of the fiscal year before the merger announcement date. Q is defined as the book value of assets minus the book value of equity plus the market value of equity, divided by the book value of assets. Free cash flow is operating income before depreciation minus interest expenses, income taxes, and capital expenditures, scaled by book value of total assets. Firm age is the number of years from incorporation until the merger announcement date. G index is constructed by adding 24 antitakeover provisions tracked by RiskMetrics as in Gompers, Ishii, and Metrick (2003). Tenure is the number of years the CEO has been in the chief executive position until the merger announcement date. Insider ownership and institutional ownership are the percentage of common stock owned by each group, respectively. Percent of independent directors is the fraction of independent directors on board. All ownership variables are measured as a % of common equity. Other variables are self-explanatory or defined elsewhere. We report White (1980) heteroskedasticity consistent *p*-values in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Parachute		Parachute	
	Merger pay package		Lost compensation	
	Model (1)	Model (2)	Model (3)	Model (4)
Intercept	-0.149	0.414	-5.489***	-5.025***
	(0.750)	(0.374)	(0.001)	(0.001)
Firm characteristics				
Log (Assets)	-0.044***	-0.055***	-0.023*	-0.028**
	(0.001)	(0.001)	(0.066)	(0.031)
Q	-0.043***	-0.042***	-0.014	-0.013
	(0.001)	(0.001)	(0.351)	(0.414)
Leverage	0.061	0.104**	0.087	0.107
	(0.213)	(0.037)	(0.218)	(0.143)
Free cash flow	-0.093	-0.074	-0.084	-0.078
	(0.474)	(0.567)	(0.657)	(0.677)
Log (Firm age)	0.024	0.016	-0.023	-0.030
	(0.113)	(0.274)	(0.285)	(0.174)
Prior year excess return	-0.219	-0.244	-0.175	-0.193
	(0.351)	(0.301)	(0.380)	(0.369)
CEO characteristics				
Founder (0,1)	-0.093**	-0.070**	-0.168***	-0.153***
	(0.011)	(0.050)	(0.001)	(0.004)
Compensation committee member (0,1)	0.072	0.078	0.172	0.181
	(0.420)	(0.373)	(0.177)	(0.158)
Number of outside directorships	0.010	0.006	-0.023	-0.025
	(0.655)	(0.792)	(0.463)	(0.431)
Chairman (0,1)	0.056**	0.035	0.000	-0.013
	(0.012)	(0.118)	(0.991)	(0.687)
Log (Age)	0.148*	0.103	1.491***	1.455***
	(0.086)	(0.225)	(0.001)	(0.001)
Tenure	-0.008***	-0.007***	0.009***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)
Ownership	-0.003***	-0.005***	0.001	0.000
	(0.003)	(0.001)	(0.385)	(0.947)
Option value / Total compensation	-0.094***	-0.096***	-0.279***	-0.281***
	(0.010)	(0.008)	(0.001)	(0.001)
Governance characteristics				
G index (minus parachute)		0.011**		0.011*
		(0.012)		(0.090)
Pct of independent directors		0.081		0.061
		(0.197)		(0.506)
Insider ownership (excluding CEO)		-0.003***		-0.002
		(0.001)		(0.214)
Institutional ownership		0.001		0.001
		(0.204)		(0.210)
Year and industry fixed effects	Yes	Yes	Yes	Yes
N	851	851	851	851
Adjusted R^2	0.336	0.377	0.258	0.264
Pr>χ^2	0.001	0.001	0.001	0.001

Table V
Parachute Importance and Deal Completion

The sample consists of 851 acquisitions announced during 1999-2007 described in Table II. The dependent variable in the logit models equals one if the proposed merger is ultimately consummated. The key independent variable is (Parachute/Merger pay package) in Models (1) and (2), and (Parachute/Lost compensation) in Models (3) and (4). Target termination fee (0,1) equals one if the target has a termination fee provision in the merger contract. Cash payment (0,1) equals one if the deal is paid entirely in cash. Regulated industry (0,1) equals one if the target's industry belongs to railroads, trucking, airlines, telecommunications, or gas and electric utilities. The Parachute Heckman lambda and the Target Heckman lambda involve a first-stage estimation of the probability of having a golden parachute and the probability of being a target as in Model (1) and Model (2) of Table AI, respectively. In the second stage, the inverse Mill's ratio from the first stage model is included in the estimation as a variable to control for endogenous self-selection. Other variables are self-explanatory or defined elsewhere. We report White (1980) heteroskedasticity consistent *p*-values in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Dependent variable = 1 if the deal is completed			
	Model (1)	Model (2)	Model (3)	Model (4)
Intercept	-3.877**	-3.680**	-4.248	-4.112
	(0.026)	(0.035)	(0.124)	(0.131)
Parachute / Merger pay package	1.482**	1.403**		
	(0.020)	(0.023)		
Parachute / Lost compensation			1.343**	1.374**
			(0.038)	(0.040)
Target termination fee (0,1)	1.295***	1.320***	1.287***	1.312***
	(0.001)	(0.001)	(0.001)	(0.001)
Target lockup (0,1)	-0.982	-1.030	-0.915	-0.936
	(0.140)	(0.128)	(0.367)	(0.355)
Prior bidding (0,1)	-2.408***	-2.456***	-2.411***	-2.442***
	(0.001)	(0.001)	(0.001)	(0.001)
Cash payment (0,1)	0.126	0.091	0.055	0.019
	(0.712)	(0.787)	(0.885)	(0.960)
Tender offer (0,1)	1.302***	1.305***	1.362***	1.363***
	(0.006)	(0.006)	(0.007)	(0.007)
Hostile deal (0,1)	-3.166***	-3.134***	-3.192***	-3.159***
	(0.001)	(0.001)	(0.001)	(0.001)
Regulated industry (0,1)	-0.558	-0.564	-0.224	-0.253
	(0.562)	(0.555)	(0.819)	(0.795)
Same industry (0,1)	1.051***	1.032***	1.080***	1.059***
	(0.001)	(0.001)	(0.002)	(0.002)
Parachute Heckman lambda	-0.226		-0.126	
	(0.413)		(0.620)	
Target Heckman lambda		-0.187		-0.186
		(0.451)		(0.464)
Year and industry fixed effects	Yes	Yes	Yes	Yes
N	851	851	851	851
Adjusted R^2	0.439	0.439	0.442	0.442
Pr>χ^2	0.001	0.001	0.001	0.001

Table VI
Golden Parachutes and Acquisition Premia

The sample consists of 851 acquisitions announced during 1999-2007 described in Table II. The dependent variable in the OLS models is the acquisition premium as reported by SDC, which is calculated as the offer price divided by the target's stock price four weeks before the merger announcement date. The key independent variable in Model (1) is the importance of the parachute relative to the merger pay package. Model (2) uses the parachute importance relative to the expected lost compensation to the target CEO as the main independent variable. Model (3) uses the parachute (0,1) as the key independent variable. The independent variable of interest in model (4) is the natural log of the parachute payment to the target CEO. The main independent variable in model (5) is the parachute multiple. Prior year excess return is the cumulative abnormal return during the one year window ending 20 trading days prior to the merger public announcement, calculated from the market model using the CRSP value-weighted return as the benchmark with an estimation period of one year prior to the beginning of the above window. A CEO is near retirement age when s/he is at least 62 years old at the time of the acquisition. Overconfident CEO (0,1) is defined as Malmendier and Tate's (2005) long-holder measure and follows Hall and Liebman's (1998) option classification procedure. It equals one if the target firm's CEO owns options at the beginning of the last year of the options' life that are at least 40% in the money. CEO employment (0,1) equals one if the target CEO already holds or obtains either a directorship position or an executive appointment such as CEO of the acquirer or a subsidiary, chief financial officer, chief operating officer, chairman, vice-chairman, president, or vice-president in the combined firm after deal completion. In case of withdrawn deals, it equals one if the CEO does not leave the target firm within a year after the withdrawal date. Rumor (0,1) equals one if the deal is rumored as reported in SDC. Litigation (0,1) equals one if the deal has associated litigation reported in SDC. Time to completion measures the number of days to close the transaction from the time it is announced. One year change in IP index is the difference in the industrial production index over one year period before the merger. Other variables are self-explanatory or defined elsewhere. All regressions include year and industry fixed effects. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Model (1)		Model (2)		Model (3)		Model (4)		Model (5)	
	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)
Intercept	0.762***	0.773***	0.308	0.298	0.506***	0.518***	0.482**	0.495***	0.469**	0.481**
	(0.001)	(0.001)	(0.318)	(0.334)	(0.009)	(0.007)	(0.012)	(0.010)	(0.014)	(0.012)
Golden parachute measures										
GP / Merger pay package	-0.497***	-0.496***								
	(0.001)	(0.001)								
GP / Lost compensation			-0.053**	-0.055**						
			(0.036)	(0.028)						
Parachute (0,1)					-0.063**	-0.062**				
					(0.031)	(0.027)				
ln (Parachute value)							-0.007*	-0.007**		
							(0.052)	(0.045)		
Parachute multiple									-0.017*	-0.017*
									(0.059)	(0.056)
Target characteristics										
Size	-0.044***	-0.042***	-0.021***	-0.017**	-0.016**	-0.014	-0.014*	-0.012	-0.014*	-0.012
	(0.001)	(0.001)	(0.009)	(0.041)	(0.044)	(0.101)	(0.078)	(0.161)	(0.080)	(0.160)
Market-to-book	-0.012	-0.013	-0.011	-0.013	-0.010	-0.011	-0.010	-0.011	-0.011	-0.012
	(0.167)	(0.144)	(0.289)	(0.224)	(0.329)	(0.285)	(0.318)	(0.274)	(0.281)	(0.242)
Leverage	0.037	0.035	0.086*	0.086*	0.060	0.059	0.061	0.060	0.062	0.062
	(0.396)	(0.417)	(0.076)	(0.074)	(0.227)	(0.230)	(0.220)	(0.222)	(0.210)	(0.211)
Free cash flow	-0.020	-0.019	-0.063	-0.058	-0.086	-0.084	-0.076	-0.074	-0.077	-0.074
	(0.854)	(0.864)	(0.602)	(0.634)	(0.502)	(0.515)	(0.553)	(0.566)	(0.549)	(0.563)
Liquidity	0.032	0.037	0.173***	0.178***	0.121**	0.126**	0.118*	0.123**	0.120*	0.125**
	(0.549)	(0.488)	(0.005)	(0.004)	(0.049)	(0.041)	(0.056)	(0.047)	(0.051)	(0.043)
Prior year excess return	0.115***	0.114***	0.087***	0.087***	0.097***	0.096***	0.096***	0.096***	0.096***	0.095***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Target CEO & board char.										
CEO near retirement (0,1)	-0.044**	-0.044*	-0.013	-0.009	-0.043*	-0.043	-0.042	-0.041	-0.042	-0.041
	(0.049)	(0.051)	(0.683)	(0.766)	(0.094)	(0.100)	(0.102)	(0.109)	(0.108)	(0.116)
Overconfident CEO (0,1)	-0.021	-0.020	-0.013	-0.013	-0.005	-0.005	-0.005	-0.004	-0.005	-0.005
	(0.237)	(0.257)	(0.528)	(0.528)	(0.792)	(0.812)	(0.812)	(0.831)	(0.797)	(0.812)
CEO-chairman (0,1)	-0.009	-0.008	-0.021	-0.022	-0.017	-0.017	-0.017	-0.016	-0.018	-0.017
	(0.585)	(0.627)	(0.274)	(0.266)	(0.378)	(0.389)	(0.397)	(0.407)	(0.374)	(0.379)
CEO-founder (0,1)	0.018	0.018	0.044	0.046	0.028	0.029	0.029	0.030	0.031	0.032
	(0.474)	(0.473)	(0.124)	(0.206)	(0.331)	(0.321)	(0.307)	(0.297)	(0.284)	(0.272)
CEO's equity ownership	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.222)	(0.220)	(0.623)	(0.573)	(0.684)	(0.650)	(0.698)	(0.663)	(0.726)	(0.690)
CEO employment (0,1)	0.011	0.011	0.015	0.012	0.017	0.015	0.017	0.015	0.016	0.015

	(0.494)	(0.521)	(0.427)	(0.524)	(0.378)	(0.420)	(0.377)	(0.420)	(0.398)	(0.442)
G index (minus parachute)	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(0.577)	(0.506)	(0.545)	(0.541)	(0.617)	(0.658)	(0.608)	(0.649)	(0.620)	(0.649)
Board ownership	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.427)	(0.455)	(0.334)	(0.326)	(0.130)	(0.135)	(0.126)	(0.131)	(0.133)	(0.135)
Pct of independent directors	0.043	0.043	0.017	0.008	0.025	0.022	0.026	0.023	0.023	0.019
	(0.393)	(0.392)	(0.765)	(0.895)	(0.664)	(0.700)	(0.658)	(0.695)	(0.696)	(0.739)
Deal characteristics										
Private acquirer (0,1)	-0.064***	-0.065***	-0.067**	-0.068**	-0.078***	-0.078***	-0.077***	-0.078***	-0.076***	-0.077***
	(0.010)	(0.008)	(0.016)	(0.014)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)
Cash payment (0,1)	0.062**	0.062**	0.067***	0.065***	0.062***	0.062***	0.062***	0.061***	0.062***	0.061***
	(0.033)	(0.033)	(0.003)	(0.004)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.008)
Tender offer (0,1)	0.082***	0.081***	0.088***	0.087***	0.102***	0.101***	0.102***	0.101***	0.101***	0.100***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Hostile (0,1)	0.061	0.061	0.068*	0.070*	0.055	0.056	0.056	0.057	0.056	0.057
	(0.164)	(0.146)	(0.071)	(0.065)	(0.145)	(0.138)	(0.138)	(0.131)	(0.139)	(0.132)
Same industry (0,1)	0.010	0.009	-0.003	-0.007	0.002	0.001	0.002	0.001	0.001	0.000
	(0.584)	(0.628)	(0.890)	(0.748)	(0.912)	(0.978)	(0.912)	(0.979)	(0.950)	(0.984)
Rumor (0,1)	0.080**	0.079**	0.085**	0.081**	0.084**	0.083**	0.085**	0.083**	0.083**	0.081**
	(0.017)	(0.019)	(0.028)	(0.036)	(0.028)	(0.031)	(0.028)	(0.031)	(0.031)	(0.035)
Litigation (0,1)	-0.116	-0.117	-0.089	-0.084	-0.099	-0.097	-0.098	-0.096	-0.092	-0.090
	(0.158)	(0.156)	(0.351)	(0.374)	(0.298)	(0.305)	(0.301)	(0.310)	(0.332)	(0.342)
Prior bidding (0,1)	0.066***	0.067***	0.075***	0.074**	0.063**	0.063**	0.064**	0.064**	0.063**	0.063**
	(0.008)	(0.007)	(0.009)	(0.010)	(0.028)	(0.027)	(0.025)	(0.024)	(0.027)	(0.027)
Toehold (0,1)	-0.021	-0.017	-0.004	0.002	0.002	0.006	0.002	0.007	0.002	0.006
	(0.586)	(0.659)	(0.935)	(0.962)	(0.966)	(0.887)	(0.958)	(0.878)	(0.962)	(0.888)
Target termination fee (0,1)	0.042*	0.052**	0.048*	0.050**	0.048*	0.050**	0.048*	0.049**	0.048*	0.049**
	(0.059)	(0.038)	(0.053)	(0.043)	(0.053)	(0.047)	(0.054)	(0.048)	(0.057)	(0.050)
Time to completion	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.122)	(0.116)	(0.400)	(0.385)	(0.426)	(0.412)	(0.433)	(0.419)	(0.444)	(0.431)
Target initiated deal (0,1)	-0.056***	-0.057***	-0.053***	-0.053***	-0.051***	-0.052***	-0.051***	-0.052***	-0.051***	-0.052***
	(0.003)	(0.003)	(0.005)	(0.005)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)
One year change in IP index	0.001	0.001	-0.003	-0.003	-0.001	-0.001	-0.001	0.000	-0.001	0.000
	(0.947)	(0.916)	(0.818)	(0.829)	(0.926)	(0.952)	(0.946)	(0.971)	(0.955)	(0.977)
Parachute Heckman lambda	-0.005		-0.012		-0.001		-0.001		-0.003	
	(0.675)		(0.389)		(0.957)		(0.934)		(0.863)	
Target Heckman lambda		-0.014		-0.024		-0.016		-0.016		-0.015
		(0.304)		(0.122)		(0.318)		(0.310)		(0.345)
Adjusted R^2	0.220	0.221	0.225	0.227	0.236	0.237	0.235	0.236	0.235	0.236
p-value of *F*-test	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Table VII
Simultaneous Equations Analyses

This table reports simultaneous equations regressions in which we treat golden parachute and acquisition premium as endogenous variables. We analyze 851 acquisitions announced during 1999-2007 described in Table II. We report simultaneous equations results using the relative importance of parachute to the lost compensation in Panel A and those using the relative importance of parachute to the merger pay package, the parachute dummy, the parachute value, and the parachute multiple in Panel B. The instruments in the second stage regressions equal the fitted value from the first stage regression. We use probit regressions when the dependent variable is the parachute dummy and OLS regressions otherwise. Other variables are self-explanatory or defined elsewhere. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Simultaneous equations using GP/LC

	Model (1A)		Model (1B)	
	1st stage	2nd stage	1st stage	2nd stage
Dependent variable =	GP / LC	Premium	Premium	GP / LC
Intercept	0.193*	0.430***	0.372***	0.297***
	(0.052)	(0.001)	(0.001)	(0.009)
GP / Lost comp (instrument)		-0.300**		
		(0.047)		
Premium (instrument)				-0.028
				(0.424)
Size	-0.019*	-0.023***	-0.017***	-0.024**
	(0.072)	(0.001)	(0.005)	(0.029)
Q	-0.018	0.006	0.011	-0.015
	(0.274)	(0.580)	(0.229)	(0.364)
Leverage	0.118	0.165**	0.129**	0.155
	(0.264)	(0.016)	(0.031)	(0.148)
Free cash flow	0.169	-0.045	-0.096	0.142
	(0.368)	(0.703)	(0.367)	(0.449)
Liquidity	-0.010	0.068	0.071	0.010
	(0.907)	(0.191)	(0.138)	(0.905)
Prior year excess return	-0.216	0.701***	0.766***	
	(0.408)	(0.001)	(0.001)	
CEO chairman (0,1)	0.033	0.010	0.000	0.033
	(0.299)	(0.622)	(0.997)	(0.298)
CEO founder (0,1)	-0.197***		0.059	-0.181***
	(0.001)		(0.310)	(0.001)
CEO tenure	0.020***	0.004	-0.002	0.020***
	(0.001)	(0.127)	(0.232)	(0.001)
Overconfident CEO (0,1)	-0.041	-0.033	-0.020	-0.047
	(0.216)	(0.124)	(0.283)	(0.158)
CEO equity ownership	0.002	0.000	0.000	0.002
	(0.110)	(0.652)	(0.731)	(0.122)
Pct. of independent director	0.107	-0.056	-0.088*	0.082
	(0.215)	(0.323)	(0.070)	(0.343)
N	851	851	851	851
Adjusted R^2	0.125	0.132	0.286	0.129
p-value of *F*-test	0.001	0.001	0.001	0.001

Panel B: Simultaneous equations using other parachute proxies

	GP proxy = GP/MPP		GP proxy = GP (0,1)		GP proxy = *ln* (GP value)		GP proxy = GP multiple	
	Model (2A)	Model (2B)	Model (3A)	Model (3B)	Model (4A)	Model (4B)	Model (5A)	Model (5B)
	2nd stage	2nd stage	2nd stage	2nd stage	2nd stage	2nd stage	2nd stage	2nd stage
Dependent variable =	Premium	GP proxy	Premium	GP proxy	Premium	GP proxy	Premium	GP proxy
Intercept	0.736***	0.845***	0.693***	0.708***	0.560***	3.378***	0.473***	0.721**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.010)
GP proxy (instrument)	-0.564**		-0.478*		-0.060*		-0.151*	
	(0.017)		(0.061)		(0.063)		(0.059)	
Premium (instrument)		-0.054		-0.097		-0.695		-0.146
		(0.221)		(0.242)		(0.296)		(0.578)
Size	-0.044***	-0.058***	-0.015**	0.002	-0.001*	0.279***	-0.002*	0.124***
	(0.001)	(0.001)	(0.030)	(0.822)	(0.064)	(0.001)	(0.057)	(0.001)
Q	0.001	-0.011	0.006	-0.011	0.005	-0.092	0.001	-0.064
	(0.874)	(0.191)	(0.611)	(0.409)	(0.642)	(0.374)	(0.907)	(0.116)
Leverage	0.157***	0.119**	0.110	-0.027	0.136*	0.193	0.197**	0.471*
	(0.005)	(0.032)	(0.112)	(0.745)	(0.053)	(0.772)	(0.012)	(0.075)
Free cash flow	-0.052	0.025	-0.197	-0.221	-0.122	-0.507	-0.181	-0.577
	(0.590)	(0.797)	(0.143)	(0.130)	(0.326)	(0.665)	(0.165)	(0.213)
Liquidity	-0.002	-0.090**	0.049	-0.039	0.016	-0.865	0.015	-0.359*
	(0.973)	(0.043)	(0.386)	(0.558)	(0.805)	(0.105)	(0.810)	(0.088)
Prior year excess return	0.532***		0.730***		0.734***		0.749***	
	(0.001)		(0.001)		(0.001)		(0.001)	
CEO chairman (0,1)	0.019	0.033**	0.028	0.059**	0.037	0.613***	0.025	0.166**
	(0.296)	(0.047)	(0.264)	(0.017)	(0.195)	(0.002)	(0.301)	(0.035)
CEO founder (0,1)		-0.073***		-0.118***		-0.942***		-0.384***
		(0.004)		(0.002)		(0.002)		(0.001)
CEO tenure	-0.004**	-0.005***	-0.003	-0.004*	-0.003	-0.017	-0.001	0.002
	(0.028)	(0.001)	(0.108)	(0.056)	(0.152)	(0.241)	(0.384)	(0.760)
Overconfident CEO (0,1)	-0.031*	-0.031*	-0.020	-0.002	-0.017	0.043	-0.021	-0.008
	(0.072)	(0.076)	(0.355)	(0.947)	(0.447)	(0.835)	(0.330)	(0.923)
CEO equity ownership	-0.002*	-0.003***	-0.001	-0.001	-0.001	-0.007	-0.001	-0.002
	(0.076)	(0.001)	(0.432)	(0.324)	(0.475)	(0.405)	(0.502)	(0.476)
Pct of independent director	0.021	0.146***	0.070	0.323***	0.080	2.736***	0.067	1.020***
	(0.754)	(0.001)	(0.511)	(0.001)	(0.475)	(0.001)	(0.520)	(0.001)
Adjusted R^2	0.142	0.136	0.150	0.077	0.132	0.129	0.122	0.126
p-value of *F*-test	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Table VIII
Predicted and Surprise Parachute Analysis

This table presents OLS regressions of acquisition premia using the 851 deals described in Table II. The dependent variable is the acquisition premium as reported by SDC. Following Comment and Schwert (1995), all financial characteristics are averaged over three fiscal years. Predicted parachute is the fitted parachute and surprise parachute is the error term from Model (1) of Table AI. These two variables enter Models (1) and (2) in this table separately from the Parachute (0,1). Other variables are self-explanatory or defined elsewhere. The *p*-values in parentheses are White (1980) heteroskedasticity consistent and adjusted for clustering by firms. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Model (1)	Model (2)
Intercept	0.885***	0.368
	(0.001)	(0.216)
Parachute (0,1)	-0.079***	-0.068**
	(0.009)	(0.013)
Predicted parachute	-0.194	-0.180
	(0.440)	(0.357)
Surprise parachute	-0.073**	-0.065**
	(0.023)	(0.032)
Poison pill (0,1)	0.015	0.008
	(0.449)	(0.684)
Classified board (0,1)	-0.005	-0.020
	(0.824)	(0.293)
Supermajority to approve merger (0,1)	-0.031	-0.022
	(0.392)	(0.470)
Delaware incorporation (0,1)	-0.011	-0.014
	(0.591)	(0.479)
Size	0.000	0.000
	(0.915)	(0.968)
Q	-0.018*	-0.013
	(0.071)	(0.180)
Leverage	0.098*	0.085*
	(0.053)	(0.080)
Sale growth	0.027	0.020
	(0.488)	(0.562)
Liquidity	0.127	0.128**
	(0.117)	(0.033)
Free cash flow	-0.140	-0.128
	(0.317)	(0.317)
Prior year excess return	-0.106***	-0.103***
	(0.000)	(0.000)
Deal characteristics		
Private acquirer (0,1)		-0.065**
		(0.021)
Cash payment (0,1)		0.063***
		(0.005)
Tender offer (0,1)		0.110***
		(0.001)
Hostile (0,1)		0.040
		(0.278)
Same industry (0,1)		0.002
		(0.934)
Prior bidding (0,1)		0.067**
		(0.016)
Target termination fee (0,1)		0.041*
		(0.098)
Target initiated deal (0,1)		-0.043**
		(0.021)
Year and industry fixed effects	Yes	Yes
Adjusted R^2	0.175	0.231
p-value of *F*-test	0.001	0.001

A.I Appendix

Table AI
Heckman First Stage Regressions

This table presents regressions of the first stage Heckman (1979) selectivity correction. Model (1) estimates the probability of having golden parachute in a particular year using 14,157 firm-years with data available from CRSP, Compustat, and RiskMetrics during 1999-2007. All firm financial characteristics are averaged over three fiscal years. Model (2) estimates the probability of being targeted in a takeover during the sample time period. The *p*-values in parentheses are White (1980) heteroskedasticity consistent and adjusted for clustering by firms. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Model (1) Parachute (0,1)	Model (2) Target (0,1)
Intercept	0.341	-2.463***
	(0.119)	(0.001)
Parachute (0,1)		0.213***
		(0.001)
Poison pill (0,1)	0.683***	0.073*
	(0.001)	(0.071)
Classified board (0,1)	0.215***	-0.077**
	(0.001)	(0.050)
Supermajority to	-0.001	-0.093
approve merger (0,1)	(0.989)	(0.101)
Delaware incorporation (0,1)	-0.032	0.111***
	(0.202)	(0.006)
Size	-0.021**	-0.103***
	(0.033)	(0.001)
Q	-0.074***	-0.069***
	(0.001)	(0.001)
Leverage	0.392***	0.120
	(0.001)	(0.298)
Sale growth	0.000	0.000
	(0.708)	(0.942)
Liquidity	-0.577***	0.038
	(0.001)	(0.776)
Free cash flow	0.181**	-0.220
	(0.032)	(0.277)
Prior year excess return	0.414	0.040
	(0.477)	(0.965)
Year and industry fixed effects	Yes	Yes
N	14,157	14,157
Adjusted R^2	0.149	0.077
p-value of *F*-test	0.001	0.001