

# CEO EMPLOYMENT CONTRACT HETEROGENEITY AND ACQUIRER RISK-TAKING

Jing Zhao \*

\* The School of Business, Portland State University, Portland, USA  
Contact details: The School of Business, Portland State University, P. O. Box 751, Portland, Oregon 97207, USA



## Abstract

**How to cite this paper:** Zhao, J. (2023). CEO employment contract heterogeneity and acquirer risk-taking. *Corporate Ownership & Control*, 20(3), 8–31. <https://doi.org/10.22495/cocv20i3art1>

Copyright © 2023 The Author

This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0). <https://creativecommons.org/licenses/by/4.0/>

**ISSN Online:** 1810-3057

**ISSN Print:** 1727-9232

**Received:** 02.11.2022

**Accepted:** 17.02.2023

**JEL Classification:** G34, J33, J41, M52

**DOI:** 10.22495/cocv20i3art1

This study analyses a hand-collected, unique dataset on chief executive officer (CEO) employment contract details for S&P 500 companies over the period of 1993–2005. To control for the sample selection issue associated with firms granting a CEO contract, the study estimates the Heckman Selection model. The study finds substantial heterogeneity in contract provisions and their impact on acquirer risk-taking in mergers and acquisitions (M&As). More specifically, contract provisions that provide job and compensation security and equity incentives appear to encourage valuable risk-taking. In contrast, bureaucratic type provisions (automatic contract renewals; lack of equity incentives) motivate risky but value-decreasing deals. Further, more refined definitions of just cause for dismissal enhance valuable risk-taking, possibly by reducing contract ambiguities and the resulting disputes, whereas just causes based upon personal conduct reduce valuable risk-taking. This paper shows how heterogeneous contract provisions reflect the optimal contracting process in a competitive market for CEO talent versus managerial power over complacent boards, highlighting the importance of understanding contract complexity and heterogeneity in designing efficient contracts to enhance shareholder value and achieve strategic corporate goals.

**Keywords:** CEO Employment Contracts, Severance, Golden Parachutes, Executive Compensation, Mergers and Acquisitions, Risk-Taking

**Authors' individual contribution:** The Author is responsible for all the contributions to the paper according to CRediT (Contributor Roles Taxonomy) standards.

**Declaration of conflicting interests:** The Author declares that there is no conflict of interest.

**Acknowledgements:** For helpful comments and suggestions on this paper, the Author would like to thank Chris Muscarella, dissertation chair, and dissertation committee members Ed Coulson, Laura Field, and Michelle Lowry, as well as Charles Knoeber, whose suggestions greatly improved this paper. The Author also benefited from the comments and suggestions of Charles Cao, Nathan Dong, David Haushalter, Jean Helwege, Srinivasan Murthy, Daisy Y. Li, Mike Lockerbie, Harold Mulherin, Greg Nagel, Hieu Van Phan, Dennis Sheehan, Tim Simin, John Wald, Mark Walker, Richard Warr, Daruo Xie, Ke Yang, Donghang Zhang, and seminar participants at Penn State University, SUNY-Binghamton, North Carolina State University, Louisiana State University, Southern Illinois University Carbondale, the 2009 Northern Finance Association Meetings, 2011 Annual Meeting of the Eastern Finance Association, 2014 Midwest Finance Association Annual Meetings and 2014 Financial Management Association Annual Meetings. The Author is grateful to the Corporate Library for providing part of the contract data used in this study.

## 1. INTRODUCTION

The efficacy of management compensation contracts for aligning incentives of managers and shareholders has been the topic of considerable debate among academics as well as in the financial press. Much of the debate focuses on the incentives, or disincentives, for management to accept valuable risky projects. Research on executive employment contracts is complicated by limited data on detailed contract information. Chief executive officer (CEO) contracts are complex, heterogeneous, and endogenous, providing challenges to researchers. The extant literature has provided some broad evidence about the effects of employment contracts on managerial behaviour yet most previous studies focus on one specific aspect of CEO employment contracts. A contract is an aggregation of many disparate provisions and we have a limited understanding of the specific mechanisms within these contracts that influence managerial behaviour.

The purpose of this paper is to enhance our understanding of how each individual contract provision influences managerial willingness to take valuable, risky investments. Zhao (2013) provides evidence that the presence of an employment contract motivates valuable risk-taking in mergers and acquisitions (M&As), yet how these employment contracts actually achieve this result is not known. This study examines whether and how each individual contract provision affects managerial risk-taking in M&As and examines whether the various effects of individual provisions reflect the optimal contracting process between the firm and executives in a competitive market for managerial talent, or conform to managerial power over complacent boards.

A standard CEO employment contract covers a variety of relationships between the executive and the firm. These contracts generally include the term of employment, position, and duties, annual compensation (base salary, bonus, and long-term equity incentives such as restricted or deferred shares and stock options), benefit plans (health and life insurance, and pension and retirement benefits), perquisites (country club membership, aircraft, and automobile use, and estate-related expenses, etc.), severance pay provisions, change-in-control arrangements, restrictive covenants (e.g., noncompete and non-solicit agreements), and definitions of just cause for CEO termination and good reason for resignation.

There are two broad views on how individual contract provisions might affect managerial risk-taking behaviour. One view is that some provisions in executive contracts provide incentives for valuable risk-taking as these contracts are designed to align managerial interests with shareholders. All else equal, CEOs want to avoid risky (valuable) projects due to their investment in firm-specific human capital as well as undiversified wealth portfolios<sup>1</sup>. Some provisions in employment contracts mitigate downside risk to encourage CEOs to accept valuable risky projects (Almazan & Suarez, 2003; Ju et al., 2004).

Another view suggests that CEO contracts result from captured boards acquiescing to desires of powerful CEOs (Bebchuk & Fried, 2003, 2004). Some contract provisions increase the cost to remove a CEO potentially facilitating CEOs' rent-seeking behaviour. Managers under reduced discipline may opt for a quiet life and avoid risk-taking (Bertrand & Mullainathan, 2003; Atanassov, 2013; Meulbroeck et al., 1990). Or these (entrenched) managers may undertake risky, less valuable projects that are personally beneficial to the CEO. This view suggests that more protection provided by contract provisions is more likely to be associated with managers being biased to projects that are either of lower risk or if higher risk, are not necessarily valuable to shareholders.

This study focuses on M&As since these events are among the largest and most important corporate investments, are observable to outsiders, and are often involved with managerial agency issues, thus offering a good laboratory to study the risk-taking incentives of various contract specifics<sup>2</sup>. M&As also provide great variety in that some acquisitions increase the risk of the firm while others are risk-reducing allowing us to observe a cross-section of economically meaningful events and compare them to specific contract provisions. To measure risk-taking, we study acquirer post-acquisition stock return volatilities. This allows capturing the net portfolio effect of adding an additional unit (acquired assets) to the firm. Armstrong and Vashishtha (2012) suggest that increasing idiosyncratic risk rather than systematic risk is more costly to managers as the former cannot be hedged by trading a market portfolio. Thus, we also investigate idiosyncratic and systematic risk. Given that the main tests of contract provisions can only be performed on firms with a CEO contract, we employ Heckman's (1979) two-stage self-selection model to address this sample selection associated with the choice of a contract.

The analysis begins with an assessment of the relationship between individual provisions and acquirer risk-taking in M&As. This article analyses a hand-collected, unique dataset on CEO employment contract details for S&P 500 companies over the period of 1993-2005. Significant heterogeneity was found in contract provisions and their impact on acquirer risk-taking in M&As. More specifically, contract provisions that provide job and compensation security and equity incentives appear to encourage valuable risk-taking. In contrast, bureaucratic type provisions (automatic contract renewals; lack of equity incentives) motivate risky but value-decreasing deals. Further, more refined definitions of just cause for dismissal enhance valuable risk-taking, possibly by reducing contract ambiguities and the resulting disputes, whereas just causes based upon personal conduct reduce valuable risk-taking. These findings are important as they show how heterogeneous contract provisions conform to efficient contracting versus managerial entrenchment, highlighting the importance of understanding contract complexity and heterogeneity in designing efficient contracts.

<sup>1</sup> Firm-specific human capital refers to managerial skills that are non-transferable across firms. A manager's investment in firm-specific human capital is not diversifiable and thus is lost in the event of departure.

<sup>2</sup> Prior authors have argued that examining M&A activity can provide important insights on managerial incentives, which may differ from studying routine internal investments such as capital expenditures or R&D (Yermack, 2006; Harford & Li, 2007).

A complication for the analysis is the high correlations between some of these provisions as contract provisions are often grouped. Principal component analysis (PCA) is conducted to group individual provisions into categories that capture common effects. It then investigates whether the components associated with risky M&As are also associated with risky, value-increasing M&As. I divide the M&As into separate groups of the most valuable relative to the less valuable deals, based upon the acquirer's three-day announcement abnormal returns. Then I estimate the differential effects of components on risk-taking in more versus less valuable M&As.

The “*Job and Pay Security*”<sup>3</sup> and “*Equity Incentive*” principal components from the PCA are consistently, significantly associated with riskier M&As and risky, more valuable M&As, suggesting that such provisions encourage CEOs to undertake risky, valuable projects consistent with efficient contracting. Further, these results are significant for idiosyncratic risk where managerial agency conflicts are most important. The third principal component (PC3) “*Non-Professional Cause*” includes contract definitions regarding ‘for cause’ dismissal related to personal, non-professional conduct and is consistently related to less risk-taking; in particular less valuable risk-taking. The evidence suggests that this component either has the unintended consequence of confining CEO behaviour in ways that exacerbate CEO risk aversion discouraging valuable risky projects or these provisions are indicative of a risk-averse culture at the firm. The fourth component (PC4) “*Bureaucrat*”, which includes automatic contract renewals (evergreen) coupled with the lack of equity incentives, appears to exacerbate managerial agency issues and motivate risky, value-destroying M&As, suggesting that there can be too much CEO protection<sup>4</sup>. The fifth component (PC5) “*Lump Sum Severance*” captures additional lump sum payout to CEOs upon departure, and appears to increase risky M&As in general.

The findings in this study are important for at least three reasons. First, this study provides novel insights into the effectiveness of the executive contracting process. The results suggest that well-designed contracts can achieve what they intend, that is to encourage valuable risk-taking rather than CEOs utilizing these contracts to entrench themselves. Second, this study highlights the importance of understanding the specific details, complexity, and heterogeneity of executive employment contracts. In Kole's (1997) seminal paper on the complexity of compensation contracts, the author calls for future research to “...incorporate specific provisions of management contracts to determine their effect on firm performance” (p. 104). This study is a partial response to this call. Most extant literature in executive compensation focuses

on specific aspects of compensation structure<sup>5</sup>. This study complements previous research by studying the various components of CEO contracts in total and their differential effects on risk-taking. The findings in this paper indicate that while some provisions do indeed encourage valuable risk-taking by mitigating managerial risk aversion, excessive CEO protection such as evergreen provisions combined with a lack of equity incentives may entrench managers.

Third, this study extended the literature on the impact of employment or severance contracts on firm value and risk-taking. Gillan et al. (2009), Rau and Xu (2013), and Rusticus (2006) examine the determinants of an explicit CEO employment or severance contract and find that these contracts are awarded to protect managerial human capital risk or against post-contractual board opportunism. This study suggests that specific provisions within managerial contracts can protect a CEO's human capital risk encouraging managers to accept higher idiosyncratic risk yet some provisions are associated with less risk-taking. Simply put, the results suggest that well-designed contracts can reduce agency costs.

The remainder of the paper is organized as follows. Section 2 presents the literature review and hypothesis development. Section 3 details the research methodology and sample construction, while Section 4 provides the results. Section 5 discusses the limitations and concludes the paper.

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

This section discusses theoretical predictions regarding the risk-taking effects of individual provisions of an employment contract, including the contract term, annual compensation items, severance pay agreement, and contract definitions of ‘just cause’ and ‘good reason’ for CEO dismissal and resignation.

Broadly speaking, there are two competing hypotheses regarding how individual contract provisions might affect managerial risk-taking behaviour. The efficient contract hypothesis predicts that contract provisions result from an efficient contracting process between the executives and shareholders, creating incentives for valuable risk-taking as these contract terms are designed to align managerial interests with shareholders. Absent a contract, CEOs tend to avoid risky (valuable) projects due to their investment in firm-specific human capital as well as undiversified wealth portfolios<sup>6</sup>. Employment contract provisions may alleviate downside risk to encourage CEOs to accept valuable risky projects (Almazan & Suarez, 2003; Ju et al., 2004).

On the contrary, the managerial entrenchment hypothesis predicts that CEO contracts may result from captured boards acquiescing to desires of powerful CEOs (Bebchuk & Fried, 2003, 2004).

<sup>3</sup> Provisions pertinent to protection of CEO employment and compensation, such as fixed term rather than “at will” contract, fixed annual pay and cash severance.

<sup>4</sup> The phrase “Bureaucrat” is borrowed from Jensen and Murphy (1990a). In describing their results, Jensen and Murphy (1990a) state: “...the compensation of top executives is virtually independent of performance. On average, corporate America pays its most important leaders like bureaucrats” (p. 138). In the context of my study, this component captures less equity based compensation that reduces pay-for-performance sensitivity and an “evergreen” term which makes the CEO more costly to dismiss, all else the same.

<sup>5</sup> Examples include equity holdings and their effects on managerial effort and risk-taking (Guay, 1999; Coles et al., 2006; Low, 2009), as well as inside debt holdings (pension benefits and deferred compensation) and their role in aligning managerial incentives with debt holders (e.g., Sundaram & Yermack, 2007; Cassell et al., 2012). Jensen and Murphy (1990b) and Kole (1997) note that various pay structure and forms are used to attain different goals.

<sup>6</sup> Firm-specific human capital refers to managerial skills that are non-transferable across firms. A manager's investment in firm-specific human capital is not diversifiable and thus is lost in the event of departure.

Contract provisions may increase the cost to remove a CEO potentially facilitating CEOs' rent-seeking behaviour. Entrenched managers may opt for a quiet life and avoid risk-taking (Bertrand & Mullainathan, 2003; Atanassov, 2013; Meulbroek et al., 1990), or undertake risky, less valuable projects that are personally beneficial to the CEO, at the costs of shareholders.

The remainder of this section presents hypotheses on the effect of each specific contract provision on managerial (valuable) risk-taking.

## 2.1. Contract term

A typical contract stipulates that executives upon early departure (fired without cause or resigned for good reason) are entitled to the contractual payment for the remaining term of the contract. Evergreen contracts are renewed automatically upon completion of the term. Thus, ending this contract requires action at the end of the term relative to contracts without this provision that require action to renew. On the other end of the spectrum, 'at will' contracts can impose a trivially short evaluation horizon. Essentially, at will contracts provide a renewable term of only one day (Gillan et al., 2009; Zhao, 2013) meaning there is no remaining term of compensation due as compared to fixed term contracts, which typically link the (no-cause and good reason) severance pay to the remaining term of a contract. However, 'at will' contracts may still include all other types of provisions.

In general, there are two views on how contract terms might affect risk-taking. The protection provided by longer-term contracts might mitigate myopic behaviour as described by Narayanan (1985) and Fudenberg et al. (1990) thereby encouraging CEOs to undertake valuable, risky projects with longer horizons<sup>7</sup>. However, it is also possible that CEOs become more entrenched with longer contract terms and evergreen provisions, which exacerbate managerial agency problems potentially inducing suboptimal risk-taking. I examine in this paper which hypothesis will be born out in the data.

## 2.2. Annual compensation

In this study, compensatory provisions are classified into three groups. First, provisions regarding fixed payments, such as annual salary and bonus (those unrelated to long-term performance) and insurance plans offer protection for the minimum level of compensation. The second group consists of equity incentives such as restricted stock and option grants. The third group consists of long-term contractual obligations to the CEO. These include pensions and supplemental executive retirement plans (SERPs). All three of the compensation groups potentially can either provide pay security for managers encouraging risk-taking or are indicative of entrenchment. Equity incentives can potentially improve pay-for-performance sensitivity enhancing value creation and risk-taking in M&As or, alternatively, larger equity incentives can be used to

camouflage extraordinary CEO pay as described in Bebchuk and Fried (2004).

More specifically, equity compensation has been widely recognized as a key incentive instrument that motivates managers to act in ways that increase firm value (e.g., Jensen & Meckling, 1976; Jensen & Murphy, 1990b; Mehran, 1995; Hall & Liebman, 1998). However, certain forms of equity-based compensation can provide incentives to undertake excessive risk (e.g., Coles et al., 2006; Armstrong et al., 2013; Gormley et al., 2013) or focus on short-term outcomes (e.g., Stein, 1988, 1989; Bolton et al., 2006; Bebchuk & Fried, 2010). Further, prior studies show that compensation contract duration associated with equity incentives (the time required for vesting of stock and option grants) is related to managerial decisions (Gopalan et al., 2014) in that when vesting is imminent, equity compensation can incentivize CEOs to reduce real investment (Edmans et al., 2017)<sup>8</sup>.

This study seeks to shed new light on this debate regarding the role of various compensation components in managerial risk-taking decisions by empirically testing how individual compensation components, including but not limited to cash versus equity-based pay, heterogeneously affect managerial risk-taking.

## 2.3. Severance pay

Ex-ante severance provisions govern the payout to CEOs upon job termination without cause or resignation with good reason. Typical payments include minimum cash payments (minimum salary and bonus multiples, and additional lump sum payment), accelerated vesting schemes for restricted stock, and option grants such that an unvested portion of these grants may become vested and/or exercisable either immediately or over a specified time period (e.g., 2-3 years) upon job termination, as well as payout in terms of LTIPs. As with compensation, these provisions could provide incentives for valuable risk-taking by providing the CEO downside protection or could be indicative of managerial entrenchment.

More specifically, the role of severance pay in compensation contracts has been controversial. Some studies show that severance provides managers with insurance for their human capital as they invest in projects susceptible to great ex-ante firm-specific risk. Thus, severance is considered an integral part of an efficient contract that motivates optimal managerial risk-taking. For example, prior literature suggests that severance pay protects CEOs against the adverse effects of termination and encourages risk-taking (Almazan & Suarez, 2003, Ju et al., 2002). Inderst and Mueller (2010) show that the use of severance coupled with a simultaneous increase in incentive pay help reduce managerial entrenchment. Laux (2015) attests that severance plays a dual role in motivating innovation and encouraging risk-taking. Manso (2011) shows that severance serves as an essential part of an optimal incentive schedule that motivates exploration by tolerating early failures and rewarding long-term successes. Van Wesep and Wang (2014) claim that if contingent on firm

<sup>7</sup> According to the survey of Graham, Harvey, and Rajgopal (2005), corporate managers with career concerns choose to abandon long-term positive net present value (NPV) projects (e.g., R&D) to boost earnings, believing that their performance is evaluated in the labor market based upon short-term stock returns or earnings.

<sup>8</sup> For reviews of the executive compensation literature see Murphy (1999, 2013), Frydman and Jenter (2010), and Edmans and Gabaix (2016).

performance, severance pay can alleviate excessive risk-taking. Therefore, this thread of literature considers severance pay as part of an optimal compensation scheme that benefits shareholders by providing managers with protection on the downside and rewards for risk-taking and innovation.

On the contrary, severance may be considered as a form of rent extraction, which works against the pay-for-performance paradigm (Bebchuk & Fried, 2004). Indeed, the US Treasury Secretary suggested that some severance agreements do not enhance the long-term value of banks as they encourage excessive risk-taking (Geithner, 2009). Brown et al. (2015) show that severance pay encourages excessive risk-taking in financial sectors.

Taken together, it's an empirical question as to whether severance pay encourages valuable risk-taking or induces excessive risk-taking to the shareholders' detriment. Using detailed information on employment contract provisions, this study seeks to shed new light on this controversy in prior literature.

#### 2.4. Definitions of 'just cause' and 'good reason' for CEO dismissal and resignation

Many contracts have provisions to clarify the conditions under which the contractual relationship may be severed or reasons for which the firm can reduce termination pay. These reasons include 'for cause' (or 'just cause') dismissals and 'no good reason' resignations. More refined definitions of just cause for CEO termination and good reason for resignation may alleviate managerial risk aversion by reducing uncertainty about termination grounds and contract ambiguity in the case of a dispute. Hence, the inclusion of such definitions in a contract may help encourage CEOs to undertake valuable risk-taking.

In this study, I aim to examine the effects of these contract definitions on managerial risk-taking, so as to offer some empirical evidence. Due to the limited data in the previous literature, this topic is not sufficiently studied. The unique dataset that was collected allowed us to conduct empirical tests and provide new insights.

### 3. RESEARCH METHODOLOGY

This section describes the sampling design, presents summary statistics, and discusses the research method (Heckman's two-stage self-selection models). This section finishes with the estimation of the first stage: the likelihood of the sample firms having a CEO contract.

#### 3.1. Sample construction

A study of S&P 500 firms over 1993–2005 is based on the sample presented by Zhao (2013). Following Gillan et al. (2009) and Zhao (2013), our research data on CEO employment contract details were collected from the Corporate Library and the Securities and Exchange Commission's (SEC) Edgar online filings database. The SEC requires full disclosure in a public firm's proxy statements of the terms and conditions of any contractual relationship between the firm and their

named executive officers (Regulation S-K, Item 402)<sup>9</sup>. The sample period starts in 1993 as this proxy disclosure rule of the SEC took effect in 1992 and ExecuComp starts coverage in 1992; it ends in 2005, with the 2006–2008 years required for the three years in the post-acquisition period to assess any effect. For CEOs who have been in office during 1993–2005 in any of the S&P 500 firms (sample is derived from the 2004 list) and their predecessors, we search firms' proxy statements (DEF-14 or DEF-14A), as well as financial disclosures on forms 8-K, 10-K, and 10-Q, for descriptions of contract terms and conditions via an extensive keyword search as detailed in Zhao (2013, Appendix C.1, p. 150)<sup>10</sup>.

Following the definition of Gillan et al. (2009), an explicit employment contract is one that covers the general employment relationship and excludes any contract that covers only a specific relationship, such as a change-in-control agreement. A CEO is considered to have a contract if that contract covers at least the basic compensation, change-in-control, and severance agreements, as these three elements provide the most important legal, employment, and compensation protection for a CEO (Zhao, 2013)<sup>11</sup>. Otherwise, the CEO is considered as one without a contract<sup>12</sup>.

M&As announced and completed by the sample firms over 1993–2005 were taken from the Securities Data Corporation (SDC) database<sup>13</sup>. In order to be included in the sample a deal must meet all of the following criteria: 1) the deal value exceeds \$10 million and is at least 5% of the acquirer's market capitalization measured 42 trading days prior to the announcement date; 2) the acquirer owns less than 50% of the target prior to the announcement and owns 100% after the M&As; 3) the deal is either a merger or tender offer as identified by SDC; 4) the acquirer has necessary data from CompStat, CRSP, ExecuComp, Thomson-Reuters 13F, and RiskMetrics<sup>14</sup>. The final sample contains 577 completed M&As made by 344 CEOs in 278 firms, with 293 (50.8%) being made by CEOs with a contract and 284 (49.2%) without. Appendix C provides sample distribution of M&As by announcement year and industry (Table C.1), and summary statistics for the sample (Table C.2), which are consistent with prior literature<sup>15</sup>.

#### 3.2. Summary statistics on individual contract provisions

Table 1 provides definitions and details of individual contract provisions for the 293 deals made by CEOs with a contract. As noted in Zhao (2013), out of

<sup>9</sup> Firms may also attach an actual copy of these agreements to their forms 10-K, 10-Q, or 8-K as exhibits, but they are not required to do so for every year.

<sup>10</sup> See Zhao (2013) for more detailed information on data collection process of CEO employment contracts sample.

<sup>11</sup> If a CEO does not have a comprehensive "employment contract" but all three essential elements are covered in separate contracts, he is also classified as having a contract. As will be shown below, the majority of contract sample has a comprehensive contract (92.2%).

<sup>12</sup> For CEOs defined as one without a contract, either the firm explicitly discloses that no employment contract exists (is also confirmed upon search), or there is no mention in the proxy statements that any contract exists (Zhao, 2013).

<sup>13</sup> A survival bias may be possible if the S&P 500 firms as of 2004 performed better and grew faster than other firms in the years prior to 2004. To address this concern, Zhao (2013) conducts robustness tests using a "rolling-forward" approach and concludes that this potential bias does not drive the differences in value-creation or risk-taking between M&As by CEOs with and without a contract.

<sup>14</sup> These are standard criteria in the M&A literature.

<sup>15</sup> The appendix tables (C.1–C.3) describe the same data as published in Zhao (2013) and thus are partly similar. Tables are included for the reader's convenience.

the 293 M&As the actual copies of contracts are located for 163 (55.6%) deals. For the remaining 130 deals, I rely on the descriptions from the SEC filings (proxy statements and 10-K, 10-Q, and 8-K forms). Two hundred and seventy cases (92%) involve a single comprehensive employment contract (where provisions are offered under the umbrella of a standalone employment agreement), while the rest are combinations of severance, change-in-control, and annual compensation agreements.

Panel A of Table 1 examines the contract term. The initial term is the number of years between the contract effective date and the expiration/renewal date, and the remaining term is the number of years between the M&A announcement date and the contract expiration/renewal date. Following Gillan et al. (2009), I set initial (remaining) terms equal to one day (1/365 years) for 'at will' contracts, contracts with an indefinite term, and contracts that fail to specify the term. For contracts that remain effective "until retirement", I set 65 as the retirement age and subtract the CEO's current age. The average (median) initial term of the 293 contracts is 3.7 (3) years, and the average (median) remaining term is 2.4 (1.9) years. Approximately 82% (239) of the 293 contracts are fixed term, 15.7% (46) are at will or indefinite term, and the remaining 2.7% (8) do not specify the term. One hundred and twenty-one (41.3%) contracts are evergreen with a mean (median) renewable term of 2.3 (2) years.

Panel B of Table 1 describes the CEO's annual compensation items. Approximately 90% (264 of 293) of the contracts contain a base salary (Salary Indicator) and 68.9% (202) explicitly state that salary will be subject to reviews for increases only. Other provisions include a signing bonus for a CEO (7.9%), a bonus plan (86%), restricted stock grants (43%), option grants (60%), long-term incentive plans (LTIP) (58%), and employee benefit plans (81%) including insurance coverage (76%), pensions (65%), and SERPs (58%). Untabulated results show that CEOs garner substantial perquisites such as automobile use (29%), tax or financial planning services (23%), aircraft use (20%), and country club membership (19%), among others.

Panel C shows that 272 contracts (93%) contain cash severance payments in terms of ranges of salary multiples, 4.8% include additional lump sum payouts to CEOs, and 73% contain bonus severance pay. Forty-two percent of the contracts carry accelerated vesting provisions for restricted stock and 53% for option grants, and 36% contain LTIP-related severance pay. In return for a severance payment, executives typically enter into restricted covenants with the firm, including confidentiality (51%), non-compete (63%), and non-solicit (43%) agreements as defined in Table 1. On average, the minimum term of a non-compete (non-solicit) covenant is 2.46 (2.67) years subsequent to the CEO's departure.

Panel D provides definitions of just cause (good reason) for CEO termination (resignation). Out of the 293 contracts, 114 (39%) fail to specify just cause for dismissal and 112 (38%) fail to specify a good reason for resignation. Causal actions have been grouped into three broad categories to better assess various definitions. Eighty-one percent (145 of 179 non-missing samples) includes language

regarding executive actions in violation of criminal laws. Professional (94.4%) refers to executive actions violating professional duties. Examples include breach of fiduciary duties or agreements with the firm (44.7%), willful misconduct (65.9%), gross or illegal misconduct (41.9%), and failure to perform duties (67.6%). Personal (64.8%) constitutes provisions that use language such as "moral turpitude" and "substance abuse". Out of the 181 contracts that explicitly specify a good reason for CEO resignation, diminution in CEO responsibility, position, or authority is cited most often (87.3%). Other reasons include duties inconsistent with the CEO position (43.1%), relocation of the executive (73.5%), and failure to compensate the CEO pursuant to the contract or reduction in pay or benefits (76.8%), among others.

In untabulated analyses, CEOs who are dismissed for-cause forfeit the majority of their contractual pay. Of the 262 contracts with non-missing information, 215 (73.4%) specify for-cause termination pay as not going beyond the termination date (prorated). Contracted severance pay is modestly better for CEOs who quit without good reason as slightly fewer (68.3%) contracts stipulate prorated payment only. Virtually all of the contracts (98.6%) with available information specify a greater pay for no-cause termination than for-cause. Likewise, 86.8% stipulate larger pay for good reason than no good reason for resignation.

### 3.3. Summary statistics for control variables

Table C.2 (Appendix C) presents summary statistics on the control variables, which are all defined in Table A.1 (Appendix A). All except binary variables are winsorized at the 1% and 99% levels. This includes various variables associated with the acquirer, target characteristics, and deal characteristics. Also included several variables related to corporate governance such as Gompers, Ishii, and Metrick's governance index (G-Index) (Gompers et al., 2003) and E-Index (or BCF-index), introduced in 2009 by Lucian Bebchuk, Alma Cohen, and Allen Ferrell (Bebchuk et al., 2009), which both focus on the firm's charter provisions related to anti-takeover defences. In addition, it includes some individual anti-takeover provisions (that are also part of the indexes) such as classified board, poison pill, and compensation plan that previous literature suggests has the strongest deterrence effect in takeovers<sup>16</sup>. Other governance variables are institutional ownership, CEO ownership, the proportion of CEO compensation in equity, whether the CEO is chairman of the board of directors, is the founder or from the founding family, the length of tenure in the current firm (Tenure) or as a CEO in the current firm (CEO Tenure), and CEO age. CEO experience, also included, is defined as the number of years since the executive became CEO in any S&P 1500 firm for the first time<sup>17</sup>.

<sup>16</sup> See Bebchuk et al. (2009), Cotter and Zenner (1994), and Harris (1990).

<sup>17</sup> Prendergast and Stole (1996) note that younger CEOs (those early in their career) are more aggressive, more likely to take greater risk, and rely more on personal belief in their decision-making. While tenure and age related variables may capture to some degree the heterogeneity in managerial risk-taking behavior due to CEO experience (e.g., Yim, 2013), but they are not sufficient. According to Prendergast and Stole (1996), we add the variable *CEO Experience* to capture the heterogeneous risk-taking preferences driven by CEO experience. In case the *CEO Experience* is shorter than *CEO Tenure* we assign the value of *CEO Tenure* to *CEO Experience*, although results are robust to using various definitions or no adjustment.

Table 1. Specifics of CEO employment contract provisions

<i>Provisions</i>	<i>Definition</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Median</i>	<i>N</i>	<i>% Sample</i>
<b>Panel A. Overall contract term</b>						
Initial term (years)	Number of years from contract effective date to expiration/renewal date	3.722	3.332	3.000	293	100
Remaining term (years)	Number of years from M&A announcement date to contract expiration/renewal date	2.371	2.238	1.917	293	100
At Will	Indicator = 1 if executive is employed at will or indefinitely				46	15.7
Evergreen indicator	Indicator = 1 if contract is automatically renewed for a fixed term continuously unless either party decides to terminate the agreement				121	41.3
Term of evergreen	Renewable term of evergreen contract	2.344	1.699	2.000	121	41.3
<b>Panel B. Annual compensation</b>						
Salary indicator	Indicator = 1 if contract mentions or specifies initial salary				264	90.1
Initial salary	Initial salary amount as specified in the contract	908,170	647,125	750,000	222	75.8
Salary increase only indicator	Indicator = 1 if contract stipulates that future salary will be subject to board reviews for increases but not decreases				202	68.9
Cash signing bonus	Cash signing bonus for the executive	981,739	886,201	500,000	23	7.9
Annual bonus plan indicator	Indicator = 1 if contract specifies executive participation in annual bonus plans				253	86.3
Target bonus (multiples of salary)	Annual target bonus in terms of multiples of salary	0.961	0.584	1.000	95	32.4
Restricted stock grant indicator	Indicator = 1 for restricted stock grants that typically vest and become exercisable over certain time period (e.g., 5-10 years)				126	43.0
Option grant indicator	Indicator = 1 for option grants to executive				177	60.4
LTIP indicator	Indicator = 1 if contract specifies executive participation in long-term equity incentive plans (usually in terms of restricted stock or option)				170	58.0
Employee benefit plan indicator	Indicator = 1 if contract specifies executive participation in employee benefit plans				237	80.9
Insurance (H/L/D/A/B)	Indicator = 1 if executive participates in insurance plans including health (H), life (L), dental (D), accident (A), or disability (B)				222	75.8
Pension	Indicator = 1 if executive participates in the firm's pension plans				190	64.8
Supplemental retirement plan (SERP)	Indicator = 1 if executive participates in supplemental executive retirement plans				169	57.7
<b>Panel C. Severance pay provisions</b>						
<i>Cash-related severance pay:</i>						
Severance salary indicator	Indicator = 1 if severance pay includes cash payment as multiples (or number of years) of the most recent (or the highest over recent past) annual salary				272	92.8
Min salary multiple	Minimum number of years (multiples) of salary guaranteed by severance pay	2.285	1.299	2.000	263	89.8
Max salary multiple	Maximum number of years (multiples) of salary guaranteed by severance pay	2.540	1.419	2.000	263	89.8
Additional lump sum payment	Additional lump sum cash payment guaranteed by severance pay (usually in addition to salary/bonus multiples and/or equity-related severance pay)	5,474,428	6,537,705	3,000,000	14	4.8
Bonus indicator	Indicator = 1 if severance pay includes cash payment as multiples (or number of years) of the most recent (or the highest over recent past) annual bonus				215	73.4
Min bonus multiple	Minimum number of years (multiples) of bonus guaranteed by severance pay	2.248	1.132	2.000	212	72.4
Max bonus multiple	Maximum number of years (multiples) of bonus guaranteed by severance pay	2.520	1.310	2.000	212	72.4
<i>Equity-related severance pay:</i>						
Restricted stock vesting indicator	Indicator = 1 if restricted stock (unvested portion) is vested and/or exercisable either immediately upon departure or gradually over a certain period following the departure				124	42.3
Option vesting indicator	Indicator = 1 if option grants (unvested portion) are vested and/or exercisable either immediately upon departure or gradually over a certain period following the departure				156	53.2
Severance LTIP indicator	Indicator = 1 for long-term equity incentive pay (usually restricted stock or option) after departure				104	35.5

**Table 1.** Specifics of CEO employment contract provisions (*continued*)

<b>Provisions</b>	<b>Definition</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Median</b>	<b>N</b>	<b>% Sample</b>
<i>Restricted covenants and clauses:</i>						
Confidentiality	Indicator = 1 for confidentiality covenant whereby the executive agrees not to disclose information deemed confidential or secret by the company after the departure				149	50.9
Noncompete	Indicator = 1 for noncompete covenant whereby the executive agrees not to work for or have a financial stake in competitors over a certain amount of time period after departure (usually in return for severance pay)				183	62.5
Min length of noncompete (years)	Minimum number of years the executive agrees not to work for competitors after departure	2.464	1.806	2.000	139	47.4
Nonsolicit	Indicator = 1 for nonsolicit covenant whereby the executive agrees not to solicit former employees or colleagues from the firm to work for another firm, over a certain amount of time period after departure (usually in return for severance pay)				126	43.0
Min length of nonsolicit (years)	Minimum number of years the executive agrees not to solicit former employees/colleagues after departure	2.672	2.178	2.000	93	31.7

<b>Panel D. Actions defined as just cause (good reason) for CEO dismissal (resignation)</b>							
<b>Just cause action</b>	<b>N</b>	<b>% Sample</b>	<b>% No-missing</b>	<b>Good reason action</b>	<b>N</b>	<b>% Sample</b>	<b>% No-missing</b>
Missing: Not mentioned or specified or found	114	38.9		Missing: Not mentioned or specified or found	112	38.2	
<i>Criminal:</i>	145	49.5	81.0	Diminution in position or authority	158	53.9	87.3
Conviction of felony	119	40.6	66.5	Duties inconsistent with the CEO position	78	26.6	43.1
Fraud, embezzlement, theft	104	35.5	58.1	Relocation	133	45.4	73.5
<i>Professional:</i>	169	57.7	94.4	Failure to compensate or reduction in pay	139	47.4	76.8
Breach of fiduciary duties or agreement	80	27.3	44.7	Failure to re-elect or (re)appoint an executive	75	25.6	41.4
Willful misconduct	118	40.3	65.9	Material breach of the agreement by the company	107	36.5	59.1
Gross or illegal misconduct	75	25.6	41.9	Other	58	19.8	32.0
Failure to perform duties	121	41.3	67.6				
<i>Personal:</i>	116	39.6	64.8				
Moral turpitude and dishonesty	116	39.6	64.8				
Substance abuse	5	1.7	2.8				

Note: Table 1 is similar to Table 8 in Zhao (2013) as the same dataset on CEO contract details is used. This table presents the details of acquiring CEO employment contract provisions for 293 U.S. M&As announced and completed by S&P 500 CEOs with an employment contract over 1993-2005.



Also included variables associated with the board of directors including board size, independence, the ratio of board members with three or more directorships ("Busy" Board), the tenure-weighted co-option is defined as the number of director years served since the CEO assumed the position divided by the number of years served on the board by all directors (TW Co-option) and percent of female directors<sup>18</sup>. In addition, other related managerial incentives including stand-alone severance (an indicator for the existence of a stand-alone severance agreement/plan that is not contained in an employment agreement) and change-in-control ("golden parachutes") provision (an indicator for the presence of change-in-control provision, either as a standalone or contained in a severance agreement/plan but excluding those in an employment contract). All of these variables were included to better ensure that any potential observed relation between CEO contract provisions and project (M&A) selection is not due to a spurious relation with other characteristics of the firm, the executive, or the deal.

### 3.4. Heckman-selection model and the likelihood of a CEO contract

Whether a CEO has a contract or not is likely related to various firm and CEO characteristics, which could potentially also be related to risk-taking. Since the main tests of contract provisions can only be conducted on firms with a CEO contract, we address this sample selection issue via Heckman's (1979) two-stage sample selection model as described in Appendix B. In the first stage, we estimate the probability of a CEO contract with a probit maximum likelihood (ML) using the full sample and calculating the inverse Mills ratio (IMR). In the second stage, we run the OLS regressions of risk-taking measures on contract provisions along with the IMR using the contract subsample. This procedure generates consistent estimates of the model parameters (Maddala, 1983). Table C.3 (Appendix C) presents the marginal effects (evaluated at the mean for continuous, and at zero for binary variables) from the first stage probit regressions. The dependent variable is *Contract*, equal to one if the CEO has an employment contract as of the M&A announcement date and zero otherwise (equation (B.1))<sup>19</sup>. We have included various variables shown in the literature that predicts a CEO contract<sup>20</sup>.

<sup>18</sup> See, e.g., Yermack (1996, 2004), Borokhovich et al. (1996), Huson et al. (2001), Gillan et al. (2011), Coles et al. (2008, 2014), Linck et al. (2008), Boone et al. (2007), among others, for studies on respective board characteristics.

<sup>19</sup> Including board characteristics reduces the sample size as RiskMetrics starts coverage on board data since 1996. Prior work (e.g., Coles et al., 2014) also shows that missing values for board busyness, TW co-option and female directors are more frequent than other attributes such as board size and independence.

<sup>20</sup> Bizjak et al. (2008) and Kedia and Rajgopal (2009) identify that peers, including geographic and industry, are determinants of managerial compensation contracts and pay structure. Motivated by these studies, Zhao (2013) and Muscarella and Zhao (2011) construct variants of contract ratios based on industry and location as instruments in the first stage of instrumental variable/two-stage least squares (IV) regressions. We also included two industry and state contract ratios in the first stage but note that the consistency of coefficient estimates are not strictly dependent upon the validity of these instruments, unlike the case with IV estimation, due to the non-linearity of the first-stage probit ML (Maddala, 1983; Greene, 2002). Specifically, Industry (State) Contract Ratio is defined as the proportion of all S&P 500 CEOs in the same two-digit SIC industry (headquartered in the same state) that have an employment contract at the fiscal year end preceding the event date.

CEOs are more likely to have a contract if their industry or local peers have one, if the boards of directors have greater independence, are not busy, have staggered director appointments, and if the CEO has a standalone severance contract but not a separate change-in-control provision<sup>21</sup>. CEO contracts are also more likely when the firm is smaller, has a lower valuation (Tobin's Q), a smaller fixed investment (Capex/Assets), and when the CEO has less power (lower BCF-index, less likely to be a founder, shorter tenure, and an outside hire). Overall, the findings are consistent with contracts protecting CEO human capital risk (Almazan & Suarez, 2003; Gillan et al., 2009; Rau & Xu, 2013).

## 4. RESEARCH RESULTS AND DISCUSSION

This section provides the results regarding the heterogeneous effects of individual contract provisions on CEO risk-taking and, as a measure to address potential multicollinearity among various contract terms, the effects of five groups of provisions on acquirer risk-taking via principal component analysis (PCA). Finally, it presents a study of the relationship between contract provisions, acquirer risk-taking, and value-creation.

### 4.1. The heterogeneous effects of contract provisions on risk-taking

This section addresses the research question: *Do specific contract provisions provide incentives or disincentives for risk-taking?* I use acquirer post-acquisition stock return volatility as well as the components, systematic and idiosyncratic risk, to measure acquirer risk-taking. In the first subsection, I examine the provisions one by one in order to better discern which provisions appear to have the most effect on risk. In the second subsection, I use the subset of provisions that appear to have the most explanatory power (from the empirical results in the first subsection) together in models to better untangle the influence of individual provisions. Since contract provisions are correlated, in the third subsection, I perform principal component analysis to see which provisions should be grouped and their relation with risk-taking.

#### 4.1.1. Individual provisions and acquirer risk-taking

Table 2 presents the regressions of acquirer risk-taking on individual contract provisions. Each provision represents a separate regression model. For brevity, all control variables, ex-ante total, idiosyncratic, systematic risk, and industry and year-fixed effects are excluded (Mitchell & Mulherin, 1996; Mulherin & Boone, 2000)<sup>22</sup>. For each model, a probit equation (B.1) (see Table C.3) is used as the first stage in Heckman's two-stage regressions. These models include 135 uncensored observations from the 262 observations used in stage one after requiring non-missing values for all control variables and instruments.

<sup>21</sup> Eighty-two percent of the 577 M&A CEOs have change-in-control provision in terms of a separate change-in-control contract, or contained in a severance agreement, or in an employment agreement. The change-in-control variable only captures the change-in-control provision for CEOs without a single comprehensive employment contract thus generating a negative coefficient.

<sup>22</sup> All results are available upon request. For this sample, no significant correlation between industry M&A activity and whether the industry is more likely to have CEO contracts. However, industry fixed effects are included.

Table 2. Individual contract provisions and acquirer risk-taking

Provisions	Total risk	Idiosyncratic risk			Systematic risk		
		CAPM	FF3	FF4	CAPM	FF3	FF4
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Overall contract term:</i>							
Remaining term	0.001*	0.001	0.001*	0.001*	0.017	0.004	0.000
	(1.84)	(1.53)	(1.68)	(1.70)	(0.92)	(0.21)	(0.01)
Remaining term > Mean	0.004***	0.002*	0.002*	0.002*	0.175***	0.136**	0.089
	(2.70)	(1.75)	(1.70)	(1.68)	(2.99)	(2.01)	(1.49)
At will	-0.006***	-0.005***	-0.006***	-0.006***	-0.235***	-0.234**	-0.128
	(-2.93)	(-3.25)	(-3.25)	(-3.33)	(-2.90)	(-2.34)	(-1.45)
Evergreen dummy	0.004***	0.003**	0.003**	0.003**	0.164***	0.141**	0.099*
	(2.93)	(2.36)	(2.53)	(2.50)	(2.95)	(2.18)	(1.69)
Evergreen term	0.002***	0.002***	0.002***	0.002***	0.072***	0.068***	0.055**
	(4.24)	(3.70)	(3.91)	(3.82)	(3.13)	(2.63)	(2.40)
<i>Annual compensation:</i>							
Salary increase only indicator	-0.002	-0.001	-0.001	-0.001	-0.069	-0.015	-0.027
	(-1.39)	(-0.73)	(-1.01)	(-1.01)	(-1.07)	(-0.21)	(-0.41)
Restricted stock indicator	0.001	-0.001	-0.001	-0.001	0.075	0.150**	0.084
	(0.47)	(-0.59)	(-0.72)	(-0.65)	(1.24)	(2.17)	(1.30)
Options grant indicator	-0.001	-0.001	-0.001	-0.001	0.060	0.118	0.073
	(-0.32)	(-0.81)	(-0.93)	(-0.83)	(0.90)	(1.54)	(1.05)
Insurance plans indicator	0.000	-0.002	-0.002*	-0.002*	0.039	0.062	0.019
	(0.19)	(-1.48)	(-1.65)	(-1.66)	(0.61)	(0.86)	(0.29)
Pension indicator	0.001	-0.001	-0.001	-0.001	0.153**	0.182**	0.137**
	(0.52)	(-0.81)	(-1.04)	(-1.06)	(2.34)	(2.48)	(2.01)
SERP indicator	0.004**	0.001	0.001	0.001	0.277***	0.219***	0.157**
	(2.27)	(0.63)	(0.54)	(0.57)	(4.26)	(2.86)	(2.26)
<i>Severance pay provisions:</i>							
Severance salary indicator	0.012***	0.008**	0.008**	0.007**	0.565***	0.333*	0.203
	(2.94)	(2.07)	(2.06)	(2.01)	(3.31)	(1.71)	(1.17)
Additional lump sum indicator	0.015***	0.013***	0.013***	0.013***	0.301**	0.309**	0.249*
	(5.39)	(5.27)	(5.28)	(5.26)	(2.41)	(2.14)	(1.94)
Severance LTIP indicator	0.003**	0.002	0.002	0.002	0.099*	-0.014	-0.025
	(2.01)	(1.24)	(1.38)	(1.42)	(1.67)	(-0.21)	(-0.41)
Stock or option vesting indicator	0.001	0.000	0.000	0.000	-0.058	-0.058	-0.055
	(0.70)	(0.24)	(0.12)	(0.12)	(-0.96)	(-0.87)	(-0.93)
Noncompete indicator	0.002*	0.001	0.001	0.001	-0.002	-0.007	-0.016
	(1.73)	(1.01)	(1.21)	(1.22)	(-0.03)	(-0.11)	(-0.27)
Minimum noncompete years	0.001**	0.001**	0.001**	0.001**	0.035	0.033	0.020
	(2.35)	(1.98)	(2.19)	(2.16)	(1.31)	(1.14)	(0.75)
<i>Just cause (good reason) for CEO termination (resignation):</i>							
No cause pay > Cause pay	0.008**	0.006**	0.006**	0.006**	0.180	0.149	0.045
	(2.38)	(2.08)	(2.19)	(2.15)	(1.33)	(1.01)	(0.34)
Good reason pay > No reason	-0.004*	-0.003	-0.003	-0.003	-0.134*	-0.029	-0.053
	(-1.87)	(-1.56)	(-1.55)	(-1.59)	(-1.66)	(-0.30)	(-0.64)
Cause or reason specified	0.003**	0.003*	0.003**	0.003**	0.074	0.077	0.075
	(2.06)	(1.93)	(2.02)	(2.00)	(1.12)	(1.04)	(1.14)
Cause: Criminal	0.003**	0.002	0.002	0.002	0.054	0.022	0.019
	(2.05)	(1.46)	(1.41)	(1.37)	(0.94)	(0.34)	(0.33)
Cause: Professional	0.002	0.001	0.001	0.001	-0.001	0.023	0.057
	(0.99)	(0.69)	(0.85)	(0.80)	(-0.02)	(0.30)	(0.83)
Cause: Personal	-0.006***	-0.005***	-0.005***	-0.005***	-0.161*	-0.251**	-0.233***
	(-2.65)	(-2.61)	(-2.87)	(-2.81)	(-1.87)	(-2.54)	(-2.67)
Reason: Position diminution	-0.001	0.000	0.000	0.000	-0.065	-0.013	-0.006
	(-0.71)	(0.29)	(0.30)	(0.30)	(-1.04)	(-0.19)	(-0.10)
Reason: Relocation	0.001	0.002*	0.002*	0.002*	-0.030	-0.025	-0.021
	(0.50)	(1.79)	(1.80)	(1.82)	(-0.54)	(-0.40)	(-0.38)
Reason: Failure to compensate	-0.001	0.000	0.000	0.000	-0.007	0.049	0.048
	(-0.40)	(0.12)	(0.04)	(0.01)	(-0.13)	(0.75)	(0.83)

Note: This table presents Heckman's two-stage self-selection model regressions of acquirer risk-taking measures on individual contract provisions. Total risk is the standard deviation of the acquirer's daily stock returns over 3-years following deal completion. Idiosyncratic risk is the standard deviation of return residuals estimated by the market model (CAPM), Fama-French three-factor model (FF3), and Carhart four-factor model (FF4). Systematic risk is the market beta estimated by the market model (CAPM), Fama-French three-factor model (FF3), and Carhart four-factor model (FF4). Industry and year-fixed effects are included in all regressions. All control variables (Board size, Board independence, Busy board, TW co-option, %Female, Classified board, Change-in-control, Stand-alone severance, Poison pill, Compensation plan, G-Index, BCF-Index, Firm size, Tobin's Q, Leverage, Free cash flow, Capex/Assets, LnVol [-3], Relative deal value, Pure stock, Hostile, Private target, Subsidiary target, Diversify, Institutional ownership, CEO equity/total pay, CEO ownership, Chair-CEO, Tenure, CEO Tenure, CEO Experience, Outside CEO, and CEO age) are included but unreported. Additionally, regressions for idiosyncratic (systematic) risk also control for pre-M&A 3-year idiosyncratic (systematic) risk estimated using corresponding models. Variables are defined in Appendix A. The inverse Mills ratio (IMR) is estimated from the first-stage probit equation (B.1) of Table C.3. The second stage estimates the OLS regressions of acquirer post-M&A stock return volatility on each individual contract provision, control variables, and the IMR for the contract subsample. Robust t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5% and 10% levels.

The dependent variable is risk measurements for three years following the M&A. Three years should be a reasonable amount of time to expect that the acquired assets will be fully incorporated into the acquiring firm. Column (1) examines

the impact of various contract provisions on total firm risk, defined as the standard deviation of the acquirer's daily stock returns over three years following the deal completion date. Also, the total risk is decomposed into idiosyncratic and systematic

risks. Systematic risk is calculated as a market beta using the CAPM, Fama-French three-factor model, and Carhart four-factor model. Idiosyncratic risk is the standard deviation of return residuals estimated from these models.

The first set of variables are those related to the contract term. The coefficients for the remaining term of a contract, a dummy variable indicating if the remaining term is greater than the sample mean (*Remaining Term > Mean*), a dummy variable for an evergreen contract, and the length of an evergreen term, are all positive and significant for total risk as well as all of the measures for idiosyncratic risk. The *At Will* indicator is negative and significant for total risk as well as idiosyncratic risk. These results all indicate that fixed-term contracts and longer contract terms are associated with greater risk-taking in M&As, in particular idiosyncratic risk that is more costly to managers.

There is little relation between annual compensation provisions and risk in these models. There is some weak evidence that the *Insurance plans indicator* is associated with lower risk and the *SERP indicator* is associated with higher risk. For the severance variables, the coefficients for cash severance, which include the *Severance salary indicator* and the *Additional lump sum indicator*, are positive and significant for all of the total and idiosyncratic risk measures. The coefficients are also positive and significant for all systematic risk metrics with the exception of Carhart four-factor model for the *Severance salary indicator*. This positive association between cash severance and risk, in particular idiosyncratic risk, is consistent with the view that ex-ante guaranteed, fixed severance pay helps align managerial interests with shareholders by protecting CEOs from poor outcomes. There is modest evidence that the *Severance LTIP indicator* is positively associated with risk-taking.

Both the existence (weakly) and the minimum length of noncompete covenants (in years) appear to encourage risk-taking. These results are counter-intuitive in that these provisions increase the cost to the manager for failure. But these covenants often appear in contracts that include other severance provisions. Indeed, Garmaise (2011) suggests that noncompete agreements motivate risk-taking by facilitating managerial stability; but they may also discourage managerial investment in firm-specific human capital.

The provisions for defining just cause termination appear to matter for risk-taking but the good reason resignation provisions do not. Contracts that stipulate larger pay for no-cause than for-cause termination are associated with greater risk-taking, whereas contracts that specify higher pay upon good reason than no good reason resignation are not. Contracts with more clarified definitions of just cause and good reason (as indicated by the indicator variable *Cause or Reason Specified*) are significantly and positively associated with acquirer risk-taking, likely by resolving ambiguity should a dispute occur. However, definitions of just cause based upon personal action reduce risk-taking, suggesting that these definitions may either impose excessive constraints on CEO behaviour and exacerbate managerial risk aversion, or reflect a conservative culture of the firm.

#### 4.1.2. A horse race of contract provisions

Multivariate analysis is continued by including multiple provisions in the same models as many of these provisions are often grouped in the same contract and interact with each other to attain certain objectives. I select the provisions that appear to be most important from the models reported in Table 2. As before, I include but suppress control variables. The results for the contract provision 'horse race' are reported in Table 3.

For the term provisions, *Evergreen term* is associated with greater risk-taking. On the opposite end of the spectrum, at will contracts have a negative relation with idiosyncratic risk in two of the three specifications. For annual compensation variables, the *Restricted stock indicator* is positively related to risk-taking while the *Salary increase only indicator* and the *Insurance plans indicator* are negatively related. Regarding severance pay variables, the indicator for additional lump sum payouts is positive and significant for all risk measures, whereas the positive relation between total risk and the indicator for severance salary multiple is primarily driven by systematic risk. *Severance LTIP indicator* is now negative and significant, likely due to the multicollinearity arising from the substantial correlation between this variable and the *Restricted stock indicator* (0.37) or *Stock or Option vesting indicator* (0.60)<sup>23</sup>. As before, the provisions associated with departure reasons follow the same patterns as in Table 2. More specificity regarding "for cause" dismissal and "good reason" to quit (*Cause or Reason specified*) is positively related to risky M&As. But more specificity on "for cause" firings regarding personal behaviour is associated with less risk-taking.

In summary, the horse race broadly confirms the findings from Table 2. More explicit protection by the evergreen provision, guaranteed cash severance, long-term equity incentives, as well as a more refined definition of just cause and good reason are associated with relatively higher risk-taking in M&As. At will contracts, provisions that stipulate salary increases, and basing just cause upon personal action are associated with relatively lower risk.

#### 4.2. Principal component analysis (PCA)

A limitation of the horse race is multicollinearity. Some provisions are often (but not always) included with other specific provisions. Table 4 presents a correlation matrix of the various contract provisions. As just one example, when contracts specify that a firing for 'no cause' receives greater severance than a 'for cause' firing (*No Cause pay > Cause pay*), 73% of these contracts also specify the insurance benefits. These two provisions are rather different, but both provide security to the CEO. Given that the correlations are not always obvious ex-ante, a principal component analysis (PCA) was performed to determine which provisions should be reasonably grouped so as to capture common effects.

<sup>23</sup> An alternative explanation is that since *Severance LTIP indicator* links severance payout to future, long-term equity incentives of the firm (as opposed to fixed and guaranteed cash payment upon termination), this provision may exacerbate managerial risk aversion leading to lower risk-taking.

Table 3. Contract provisions altogether and acquirer risk-taking: A horse race

Provisions	Total risk	Idiosyncratic risk			Systematic risk		
		CAPM	FF3	FF4	CAPM	FF3	FF4
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Remaining term > Mean	-0.000 (-0.33)	-0.001 (-0.51)	-0.001 (-0.68)	-0.001 (-0.69)	0.043 (0.63)	0.014 (0.18)	0.024 (0.35)
At will	-0.002 (-1.10)	-0.003 (-1.49)	-0.003* (-1.69)	-0.003* (-1.79)	-0.103 (-1.13)	-0.037 (-0.35)	0.033 (0.34)
Evergreen term	0.002*** (3.18)	0.001*** (2.99)	0.001*** (3.24)	0.001*** (3.11)	0.060** (2.41)	0.079*** (2.84)	0.068*** (2.67)
Salary increase only indicator	-0.005*** (-3.83)	-0.003*** (-3.02)	-0.004*** (-3.32)	-0.004*** (-3.35)	-0.098 (-1.64)	-0.094 (-1.39)	-0.086 (-1.42)
Restricted stock indicator	0.005*** (3.74)	0.003*** (2.68)	0.003*** (2.63)	0.003*** (2.62)	0.229*** (3.61)	0.355*** (5.07)	0.263*** (4.04)
Insurance plans indicator	-0.001 (-0.48)	-0.002* (-1.67)	-0.002* (-1.93)	-0.002* (-1.92)	0.068 (1.18)	0.034 (0.54)	-0.011 (-0.18)
Severance salary indicator	0.009** (2.09)	0.005 (1.28)	0.004 (1.16)	0.004 (1.08)	0.862*** (4.30)	0.654*** (2.98)	0.564*** (2.79)
Additional lump sum indicator	0.021*** (8.41)	0.018*** (8.05)	0.018*** (8.18)	0.018*** (8.08)	0.447*** (3.69)	0.649*** (4.70)	0.554*** (4.40)
Severance LTIP indicator	-0.004*** (-3.16)	-0.003*** (-3.20)	-0.003*** (-3.21)	-0.003*** (-3.09)	-0.067 (-1.14)	-0.212*** (-3.30)	-0.193*** (-3.26)
Stock or Option vesting indicator	-0.000 (-0.05)	0.001 (0.52)	0.001 (0.56)	0.001 (0.58)	-0.260*** (-4.01)	-0.197*** (-2.76)	-0.155** (-2.44)
No Cause pay > Cause pay	0.001 (0.29)	0.002 (0.83)	0.003 (0.95)	0.003 (0.96)	-0.391*** (-2.66)	-0.412** (-2.54)	-0.433*** (-2.90)
Cause or reason specified	0.004*** (2.73)	0.004*** (2.73)	0.004*** (2.86)	0.004*** (2.88)	0.159** (2.17)	0.232*** (2.88)	0.209*** (2.83)
Cause: Criminal	0.001 (0.86)	0.001 (0.89)	0.001 (0.81)	0.001 (0.76)	-0.085 (-1.23)	-0.090 (-1.19)	-0.071 (-1.02)
Cause: Personal	-0.010*** (-5.29)	-0.008*** (-5.05)	-0.008*** (-5.23)	-0.008*** (-5.14)	-0.271*** (-3.13)	-0.387*** (-3.87)	-0.357*** (-3.97)
Inverse Mills ratio (IMR)	-0.001 (-0.43)	-0.000 (-0.16)	-0.000 (-0.23)	-0.000 (-0.18)	-0.085 (-0.97)	0.015 (0.16)	0.041 (0.46)
All Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry & Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	262	262	262	262	262	262	262
Censored obs.	127	127	127	127	127	127	127
Uncensored obs.	135	135	135	135	135	135	135

Note: This table presents Heckman's two-stage self-selection model regressions of 3-year acquirer post-M&A stock return volatility on contract provisions altogether. Total, idiosyncratic, and systematic risks are defined in Table 2. All control variables and industry and year-fixed effects are included but unreported. Variables are defined in Appendix A. The inverse Mills ratio (IMR) is estimated from the first-stage probit equation (B.1) of Table C.3. The second stage estimates the OLS regressions on contract provisions altogether and controls, along with the IMR for the contract subsample. Robust t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5% and 10% levels.

PCA groups variables together simply based upon correlation amongst them and assume no theoretical justification for the groupings as they are purely data-driven. The first step of PCA is to capture the eigenvalues for each variable. A commonly used standard is to consider components with eigenvalues close to one or greater. We consider the first five components, which have eigenvalues greater than 0.82 and in total can explain more than 80% of data variation<sup>24</sup>. As a rule of thumb, we consider eigenvectors (or variable loadings) that have an absolute value greater than 0.3, which are deemed to be influential in the component<sup>25</sup>. While all the variables contribute to the component, the 0.3 cut-off enables us to focus on those dominant ones (i.e., over a certain magnitude).

Table 5 presents the first five principal components and their constituent provisions whose eigenvectors (or loadings on the individual provisions) are above |0.3|. The first principal

component (PC1) contains provisions directly related to the type of contract ('at will' vs. 'fixed term'), fixed pay, specification of termination grounds, and executive protection upon dismissal: 'At will' (a negative sign of the loading means 'Fixed Term'), "Salary increase only indicator", "Insurance plans indicator", "Severance salary indicator", "No Cause pay > Cause pay", and "Cause or reason specified". The first component is referred to as "Job and Pay Security" as it contains provisions that offer employment and compensation protection to CEOs.

The second component (PC2) contains executive equity incentives including: "Restricted stock indicator", "Severance LTIP indicator", and "Stock or options vesting indicator". This component is called "Equity Incentive". The third component (PC3) is called "Non-Professional Cause" because it contains only definitions of just cause based on criminal acts or personal attributes with the latter dominating the component (weight of 0.464 versus 0.772). The fourth component (PC4) contains contract terms "Remaining term > Mean", "Evergreen term" and a negative loading on "Restricted stock indicator". This group is referred to as "Bureaucrat" following the idea that these CEOs have long-term contracts that automatically roll over and the contracts tend to not provide for equity-based compensation.

<sup>24</sup> I do not report more components as the later components have very limited explanatory power in the regressions that follow. I also run regressions using the first three components as all three have eigenvalues greater than one and on aggregate can explain 68% of data variation; I find consistent results.

<sup>25</sup> For details on PCA, see Stata manuals at <http://www.stata.com/manuals13/mvpc.pdf>. It is worth noting that quite a few contract provision variables used are binary, which PCA was not specifically designed for. A large simulation study of Kolenikov and Angeles (2004) compares various methodologies for discrete data (including binary variables) and conclude that the results using standard PCA completely ignoring the discreteness are one of two superior methods (which are substantively similar).

**Table 4.** Correlation coefficients between contract provisions

<i>Provisions</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Remaining term > Mean	1												
(2) At Will	-0.7782*	1											
(3) Evergreen term	0.5231*	-0.4755*	1										
(4) Salary increase only indicator	0.5506*	-0.7105*	0.3852*	1									
(5) Restricted stock indicator	0.4323*	-0.5264*	0.1743*	0.4563*	1								
(6) Insurance plans indicator	0.5787*	-0.6801*	0.4013*	0.6070*	0.4873*	1							
(7) Severance salary indicator	0.6778*	-0.8622*	0.4206*	0.6898*	0.5261*	0.7089*	1						
(8) Additional lump sum indicator	0.1426*	-0.1875*	-0.0447	0.0968*	-0.0288	0.1068*	0.1670*	1					
(9) Severance LTIP indicator	0.3721*	-0.4661*	0.2622*	0.4404*	0.3742*	0.4076*	0.4965*	0.1605*	1				
(10) Stock or Option vesting	0.5052*	-0.5743*	0.4400*	0.4998*	0.5442*	0.5482*	0.6182*	0.1512*	0.5971*	1			
(11) No Cause > Cause pay	0.6280*	-0.7976*	0.4077*	0.7056*	0.5165*	0.7303*	0.9063*	0.0739	0.4609*	0.5914*	1		
(12) Cause or reason specified	0.5713*	-0.6619*	0.3803*	0.6271*	0.4348*	0.6865*	0.7247*	0.1141*	0.4491*	0.5227*	0.7686*	1	
(13) Cause: Criminal	0.4493*	-0.4862*	0.3131*	0.5381*	0.3708*	0.5602*	0.5254*	0.0385	0.4456*	0.4796*	0.5789*	0.7630*	1
(14) Cause: Personal	0.0971*	-0.2195*	0.1743*	0.3214*	0.1932*	0.2526*	0.2588*	0.0525	0.2332*	0.3474*	0.2398*	0.3397*	0.4453*

Note: This table presents Pearson correlation coefficients between individual contract provisions. \* denotes  $p$ -value  $\leq 0.05$ .

**Table 5.** Principal component analysis (PCA)

<i>Provisions</i>	<i>Component 1</i>	<i>Component 2</i>	<i>Component 3</i>	<i>Component 4</i>	<i>Component 5</i>	<i>Unexplained</i>
	<i>"Job and Pay Security"</i>	<i>"Equity Incentive"</i>	<i>"Non-Professional Cause"</i>	<i>"Bureaucrat"</i>	<i>"Lump Sum Severance"</i>	
Remaining term > Mean				0.3088		0.2502
At Will	-0.3535					0.1489
Evergreen term				0.8586		0.08136
Salary increase only indicator	0.3254					0.3477
Restricted stock indicator		0.5077		-0.3308		0.2284
Insurance plans indicator	0.3569					0.3091
Severance salary indicator	0.3746					0.1448
Additional lump sum indicator					0.9346	0.04989
Severance LTIP indicator		0.6233				0.2893
Stock or Option vesting		0.5683				0.1965
No Cause > Cause pay	0.4129					0.1463
Cause or reason specified	0.3846					0.1909
Cause: Criminal			0.464			0.2546
Cause: Personal			0.7721			0.2048

Note: This table presents the principal component loadings for individual contract provisions that have eigenvectors exceeding  $|0.3|$ .

The final component (PC5) contains only an “Additional lump sum indicator” with a high loading of 0.935; as such we label it “Lump Sum Severance”. Comparing the five components, it appears that each component captures different types of contract provisions.

Table 6 shows how these five components impact acquirer risk-taking. Regression specifications follow directly those of Table 3, except that individual contract provisions are now replaced by the five components. Again, for brevity, we do not report coefficient estimates on the control variables and the fixed effects. Across all seven

models, “Job and Pay Security” has positive and significant coefficients for all risk measures, which is broadly consistent with the results in Table 3. The second component “Equity Incentive” has insignificant coefficients in all regressions. Consistent with the earlier evidence, “Non-Professional Cause” is significant and negative across all regressions. The coefficients for “Bureaucrat” are positive for the majority of regressions but insignificant. Finally, the coefficients for “Lump Sum Severance” are significant and positive for all risk metrics as we observed in the individual provision horse race.

**Table 6.** The effect of principal components (PC) on acquirer risk-taking

Principal component	Total risk	Idiosyncratic risk			Systematic risk		
		CAPM	FF3	FF4	CAPM	FF3	FF4
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
PC1 — “Job and Pay Security”	0.003*** (4.29)	0.002*** (3.56)	0.002*** (3.40)	0.002*** (3.37)	0.104*** (3.40)	0.133*** (3.98)	0.087*** (2.90)
PC2 — “Equity Incentive”	-0.000 (-0.88)	-0.001 (-1.41)	-0.001 (-1.47)	-0.001 (-1.38)	-0.018 (-0.86)	-0.030 (-1.29)	-0.033 (-1.57)
PC3 — “Non-Professional Cause”	-0.002*** (-4.24)	-0.002*** (-3.99)	-0.002*** (-4.12)	-0.002*** (-4.08)	-0.067*** (-3.38)	-0.089*** (-4.07)	-0.070*** (-3.55)
PC4 — “Bureaucrat”	0.001 (1.31)	0.001 (1.53)	0.001* (1.77)	0.001* (1.69)	0.030 (1.08)	0.002 (0.08)	0.013 (0.47)
PC5 — “Lump Sum Severance”	0.002*** (5.73)	0.002*** (5.81)	0.002*** (5.83)	0.002*** (5.81)	0.047** (2.53)	0.049** (2.37)	0.041** (2.19)
Inverse Mills ratio (IMR)	-0.001 (-0.44)	-0.001 (-0.59)	-0.001 (-0.70)	-0.001 (-0.65)	-0.118 (-1.41)	0.043 (0.46)	0.062 (0.73)
All controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry & Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	262	262	262	262	262	262	262

Note: This table presents Heckman’s two-stage self-selection model regressions of 3-year acquirer post-M&A stock return volatility on five principal components of contract provisions. These variables are created from the analysis in Table 5 and contain the variables indicated. Total, idiosyncratic, and systematic risks are defined in Table 2. All control variables and industry and year-fixed effects are included but unreported. Variables are defined in Appendix A. The inverse Mills ratio (IMR) is estimated from the first-stage probit equation (B.1) of Table C.3. The second stage estimates the OLS regressions on principal components and all controls, along with the IMR for the contract subsample. Robust t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5% and 10% levels.

### 4.3. Risk and value

So far, this study has provided evidence that certain contract provisions are associated with riskier M&As. The evidence suggests that these provisions are protecting CEOs that take on more risk, especially idiosyncratic risk. But are the CEOs taking a risk that adds firm value or are these risky projects allowing for indulgences that are privately valuable to the CEO but less so to the shareholders? If it is the case that the higher-risk projects that certain provisions are related to are not higher-value projects, then the value to shareholders of providing incentives for the CEO to take higher-risk projects is less clear. The desirability of these contract provisions is more compelling if, in fact, the higher-risk acquisitions taken by CEOs (with these provisions) are also more valuable. To approach this issue, I divide the sample into more versus less valuable M&As and interact this division with contract components as the variables of interest. Essentially, the question is: *Are certain provisions related to greater risk-taking in more valuable M&As (as opposed to less valuable M&As)?*

I use the acquirer 3-day abnormal announcement returns, CAR [-1, +1] as the measure for the valuation effect of the M&A. In addition, I use standard event study methodology: market model with the parameters estimated between -210 and -11 days before the announcement. The average CAR [-1, +1] for the full sample is -0.62% with

a standard deviation of 5.67%<sup>26</sup>. I create an indicator variable, CAR\_H, which equals one if the acquirer CAR [-1, +1] is at least one standard deviation above the mean abnormal announcement returns for the sample. In so doing, I attempt to capture those M&As that are unambiguously valuable from the assessment of the market given the information available at the announcement, particularly since the uncertainty around the announcement (standard deviation of CAR [-1, +1]) is rather high<sup>27</sup>. I create five dummy variables for each of the five components, DPC<sub>i</sub> (i = 1, ..., 5), equal to one if the firm’s i-th component is greater than the mean value of that component and zero otherwise. I then regress various risk measures on the five principal component dummies (DPC1 through DPC5), and the interaction of each of the five component dummies with CAR\_H<sup>28</sup>. I include the same list of control variables as before and suppress those results. Importantly, several of these variables help

<sup>26</sup> The mean CAR [-1, +1] is 0.01% for the contract subsample and -1.27% for no-contract subsample, and the difference is significant at less than 1%. Results using other estimation periods such as [-250, -50] are unchanged.

<sup>27</sup> I also use other cutoffs to define CAR\_H, such as zero. As will be discussed below, I find qualitatively similar results despite some caveats associated with this alternative cutoff.

<sup>28</sup> I also attempted to run subsample regressions using the two separate subsamples: more vs. less valuable M&As (CAR\_H=1 vs. CAR\_H=0) and compare coefficient estimates between the two subsamples. However, the subsample approach significantly reduces the number of observations for each subsample. Given the large number of control variables and fixed effects (54), Heckman selection model fails to converge in subsample regressions. Thus, I focus on this interaction term approach, which has more power than the subsample regressions. Additionally, I conduct tests using PCs rather than PC dummies. I find qualitatively similar results but weakened statistical significance.

control for the project opportunity set available to each firm such as market-to-book, free cash flow, capital expenditures to assets, firm size, etc. I also include CAR\_H to control for any potential relation between risk and abnormal returns unrelated to contract provisions.

The null hypothesis ( $H_0$ ) is that: *If managers tend to accept risky projects regardless of value, then the interaction terms should be zero.* For those provisions that provide incentives to accept valuable, risky projects expected a positive coefficient for the interaction term. It is expected to observe a negative coefficient for the interaction term if CEOs are avoiding risky valuable (from the view of the shareholders) projects, all else equal. One could easily argue that a negative coefficient for the interaction term reflects good project selection if this relation indicates that certain provisions are providing incentives to accept valuable, low-risk

projects. Yet, it has been established that some provisions (and groups of provisions) are related to higher risk. Here we focus on the specific, important question about these provisions: *Are these risky projects (that are associated with these provisions) also valuable projects?*

Table 7 presents the results, which include F-tests (with p-values reported) at the bottom of the table to capture the aggregate effect of the two coefficients associated with each principal component (PC) dummy by testing whether the sum of the PC dummy and the interaction term is equal to zero. Thus, the F-test captures the risk difference between high and low (DPC equals to 1 or 0) PC for higher-value M&As. The PC dummies capture the risk difference between high and low PC for lower-value M&As.

**Table 7.** The effect of principal components (PC) on risk-taking: More vs. Less valuable M&As

Principal component	Total risk	Idiosyncratic risk			Systematic risk		
	(1)	CAPM (2)	FF3 (3)	FF4 (4)	CAPM (5)	FF3 (6)	FF4 (7)
DPC1 — “Job and Pay Security”	0.002 (0.38)	-0.000 (-0.04)	0.001 (0.20)	0.001 (0.14)	-0.005 (-0.03)	-0.035 (-0.17)	-0.199 (-1.11)
CAR_H * DPC1	0.024** (2.53)	0.021** (2.41)	0.021** (2.42)	0.021** (2.46)	0.101 (0.24)	0.522 (1.11)	0.489 (1.17)
DPC2 — “Equity Incentive”	0.002 (1.11)	0.001 (0.68)	0.001 (0.58)	0.001 (0.62)	0.051 (0.66)	0.111 (1.23)	0.086 (1.08)
CAR_H * DPC2	0.007* (1.91)	0.006* (1.94)	0.006* (1.86)	0.006* (1.83)	0.285* (1.95)	-0.004 (-0.02)	-0.029 (-0.19)
DPC3 — “Non-Professional Cause”	-0.001 (-0.60)	-0.000 (-0.31)	-0.001 (-0.44)	-0.001 (-0.49)	-0.045 (-0.67)	-0.099 (-1.29)	-0.059 (-0.87)
CAR_H * DPC3	-0.006* (-1.88)	-0.005** (-1.97)	-0.005* (-1.93)	-0.005* (-1.94)	-0.063 (-0.49)	0.056 (0.37)	0.025 (0.18)
DPC4 — “Bureaucrat”	0.004** (2.49)	0.003** (1.97)	0.003** (2.15)	0.003** (2.11)	0.222*** (3.27)	0.153* (1.94)	0.121* (1.75)
CAR_H * DPC4	-0.003 (-0.86)	-0.002 (-0.55)	-0.002 (-0.52)	-0.001 (-0.49)	-0.291** (-2.04)	-0.379** (-2.26)	-0.390*** (-2.62)
DPC5 — “Lump Sum Severance”	-0.000 (-0.20)	0.000 (0.31)	0.001 (0.40)	0.001 (0.44)	-0.055 (-0.87)	-0.131* (-1.77)	-0.093 (-1.40)
CAR_H * DPC5	-0.002 (-0.53)	-0.000 (-0.14)	-0.001 (-0.33)	-0.001 (-0.38)	-0.099 (-0.61)	-0.057 (-0.30)	-0.079 (-0.47)
Inverse Mills ratio (IMR)	0.002 (1.23)	0.002 (1.22)	0.002 (1.21)	0.002 (1.19)	-0.035 (-0.43)	0.109 (1.15)	0.114 (1.38)
Controls, CAR_H, and FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry & Year FE	262	262	262	262	262	262	262
N	0.002	-0.000	0.001	0.001	-0.005	-0.035	-0.199
<i>F-Tests on Coefficient Sums (p-value in parenthesis):</i>							
“Job and Pay Security” (PC1)	0.026*** (0.004)	0.021** (0.011)	0.022*** (0.008)	0.022*** (0.007)	0.096 (0.814)	0.487 (0.265)	0.290 (0.454)
“Equity Incentive” (PC2)	0.009*** (0.008)	0.007** (0.015)	0.007** (0.022)	0.007** (0.022)	0.336** (0.016)	0.107 (0.506)	0.057 (0.692)
“Non-Professional Cause” (PC3)	-0.007** (0.015)	-0.005** (0.018)	-0.006** (0.017)	-0.006** (0.015)	-0.108 (0.349)	-0.043 (0.750)	-0.034 (0.772)
“Bureaucrat” (PC4)	0.001 (0.726)	0.001 (0.677)	0.001 (0.584)	0.002 (0.578)	-0.069 (0.589)	-0.226 (0.139)	-0.269** (0.046)
“Lump sum Severance” (PC5)	-0.002 (0.500)	0.000 (0.985)	0.000 (0.846)	0.000 (0.810)	-0.154 (0.290)	-0.188 (0.270)	-0.172 (0.255)

Note: This table presents Heckman’s two-stage self-selection model regressions of 3-year acquirer post-M&A stock return volatility on five dummy variables indicating above-mean levels of principal component provisions and the interaction terms between each principal component dummy and CAR\_H, which is an indicator variable equal to one if the acquirer three-day cumulative abnormal returns around the announcement date (day 0), CAR [-1, +1], are one standard deviation above the sample mean or greater, and zero otherwise. CAR [-1, +1] is computed using the market model, the CRSP value-weighted market return, and an estimation period of [-210, -11]. Principal components are PC1 — “Job and Pay Security”, PC2 — “Equity Incentive”, PC3 — “Non-Professional Cause”, PC4 — “Bureaucrat”, and PC5 — “Lump Sum Severance”. These variables are created from the analysis in Table 5 and contain the variables indicated. DPC1 is an indicator variable that equals one if PC1 is greater than the sample mean and zero otherwise. DPC2 through DPC5 are constructed analogously. Total, idiosyncratic, and systematic risk are defined in Table 2. All control variables, industry, year-fixed effects, and CAR\_H are included but unreported. Variables are defined in Appendix A. The inverse Mills ratio (IMR) is estimated from the first-stage probit equation (B.1) of Table C.3. The second stage estimates the OLS regressions on principal component dummies, their interactions with CAR\_H, CAR\_H, and all controls, along with the IMR for the contract subsample. Robust t-statistics are reported in parentheses. F-tests (p-value in parenthesis) of the sums of the coefficients on DPC<sub>i</sub> and CAR\_H\*DPC<sub>i</sub> are reported (i = 1 to 5). \*\*\*, \*\*, and \* denote significance at the 1%, 5% and 10% levels.

The first PC, “*Job and Pay Security*” is associated with more valuable risk-taking in M&As. This stimulating effect is only apparent for total and idiosyncratic risk suggesting that these contract provisions are working exactly as intended: to mitigate CEO reluctance to accept idiosyncratic risk. Likewise, the second PC, “*Equity incentive*” is positive and significant with total and idiosyncratic risk indicating that the more valuable projects selected are also riskier. Just cause definitions based primarily upon personal preferences, “*Non-Professional Cause*”, are negative and significant for total and idiosyncratic risk for more valuable projects. Previously, this component was found to be associated with lower risk. These models found evidence that lower risk appears to be due to avoiding risky valuable projects. The coefficients for “*Bureaucrat*” suggest a willingness to take a risk, but only for less valuable M&As. As robustness, I re-run PCA interaction regressions of Table 7 while defining CAR\_H = 1 if CAR [-1, +1] is greater than zero<sup>29</sup>. I find qualitatively similar results though some of the significance is weakened. The findings are also robust if I use the maximum likelihood estimator (MLE) selection model regressions instead of Heckman’s model<sup>30</sup>.

The evidence from these models suggests that contract provisions relating to job and pay security and equity-based compensation, better align managerial incentives with their shareholders to encourage valuable risk-taking. This finding corroborates prior literature that fixed term and/or a longer duration contract, as well as guaranteed severance pay offer greater job security and protection to managers, thus encouraging valuable risk-taking (Narayanan, 1985; Almazan & Suarez, 2003; Ju et al., 2002; Manso, 2011). The finding is also consistent with the classic view that equity incentives help align managerial incentives and horizons with the shareholders and motivate risky and value-increasing investments (e.g., Jensen & Meckling, 1976; Jensen & Murphy, 1990b; Murphy, 2013; Fryman & Jenter, 2010; Low, 2009).

Finally, definitions of just cause for dismissal based on CEO personal matters appear to exacerbate managerial risk aversion. The bureaucrat PC contains provisions that are associated with an evergreen term and less equity incentives. Here it was found that CEOs with these provisions have a greater willingness to take risky, lower-value projects (but possibly high value to the CEO). Contracts that have this group of provisions appear to be more consistent with the managerial entrenchment hypothesis.

<sup>29</sup> For this alternative cutoff, due to multicollinearity the interaction term between CAR\_H and DPC1 is automatically excluded from each regression once DPC1 is present. Despite this caveat, I find qualitatively similar results. Further, increasing the threshold (e.g., to 1.28, 1.65, or 2 standard deviation above the mean) causes similar multicollinearity as it results in too few observations for valuable deals.

<sup>30</sup> As noted in Zhao (2013, footnote 34), due to the substantial reduction in the number of observations the MLE regressions fail to converge when board characteristics and other related managerial incentives are included as control variables, as these variables are available since 1996 and even then have many missing values (e.g., TW co-option, %Female). All MLE regressions are run without these controls, which are generally insignificant as shown by the Heckman’s two-stage selection model regressions. Results remain unchanged. The MLE results are also robust whether I include both industry and year fixed effects, either one, or neither of them.

## 5. CONCLUSION

This study employs a unique, hand-collected dataset on employment contract details for S&P 500 CEOs during 1993–2005. The study examines the heterogeneous effects of individual contract provisions on managerial investment and risk-taking behaviour using M&As as the laboratory. The dependent variables are post-acquisition risk measured three years following the deal completion (1996–2008). To control for sample selection bias associated with firms granting a CEO contract (non-randomly), the Heckman selection model was applied.

Significant heterogeneity was found in CEO contract provisions and their effects on risk-taking in M&As. Contract provisions that offer greater job and pay security, such as a fixed term rather than “at will” contract, fixed annual pay, guarantees for cash severance, greater severance pay to executives upon no-cause than for-cause termination, and having clarified definitions regarding “for cause” firings and “good reason” to quit, encourage acquirer risk-taking. Additionally, equity incentives also encourage higher-risk M&As. In particular, these provisions are related to accepting more idiosyncratic risk, precisely the risk that managers want to avoid and shareholders can diversify away. And the risk-taking associated with these provisions is more associated with higher-value M&As. This evidence is broadly supportive of the efficient contracting view.

But not all provisions provide incentives for increasing valuable risk-taking. Defined “just cause” for firing based upon personal issues (as opposed to professional actions) reduces risk-taking in M&As, in particular valuable risk-taking. It is possible that these definitions impose constraints on CEO behaviour so as to exacerbate CEO risk aversion and impede valuable risky M&As. Or firms that want such clauses in CEO contracts have a risk-averse corporate culture. These explanations are not mutually exclusive. I also find that contract provisions that compensate and protect CEOs like bureaucrats motivate risk-taking only for lower-value M&As. The combination of an evergreen term and a lack of equity compensation appears to be more associated with the entrenchment view of CEO contracts.

A potential concern for the analysis of individual provisions is the high correlations between some of these provisions. To alleviate such a concern, I perform the principal component analysis (PCA) in order to group individual provisions into categories that capture common effects. Continuing the analysis, the study presents how the contract components affect (valuable) risk-taking in M&As and reveal interesting results that are generally consistent with the analysis of individual contract provisions.

More specifically, contract components pertaining to the “*Job and Pay Security*” and “*Equity Incentive*” are consistently, significantly associated with riskier and more valuable M&As, suggesting that such provisions, by protecting managers against the adverse effects of job termination and project failure, encourage CEOs to undertake risky, valuable investments consistent with efficient contracting. The third component includes contract definitions



regarding “for cause” dismissal related to personal, non-professional conduct and is consistently related to less risk-taking; in particular less valuable risk-taking. The evidence suggests that this component either has the unintended consequence of confining CEO behavior in ways that exacerbate CEO risk aversion discouraging valuable risky projects or these provisions are indicative of a risk-averse culture at the firm. The fourth component “Bureaucrat”, which includes automatic contract renewals (evergreen) coupled with the lack of equity incentives, appears to exacerbate managerial agency issues and motivate risky, value-destroying M&As, suggesting that there can be too much CEO protection. Finally, the component, “Lump Sum Severance” captures additional lump sum payout to CEOs upon departure, and appears to increase risky M&As in general, consistent with such provisions inducing risk-taking by providing guarantees and insurance.

These findings reveal great details on CEO employment agreements which have not been explored much in prior studies. This paper also provides new evidence on the heterogeneous effects of various contract provisions on managerial (valuable) risk-taking behaviour. In so doing, this study sheds new light on the contracting process between the executive and the firm, e.g., whether employment contracts result from the efficient contracting process in a competitive market for managerial talent, or CEO power over complacent boards. This study also highlights the importance of understanding the specifics, heterogeneity, and correlations of various contract details, and their respective impact on managerial decision-making when designing efficient managerial contracts in

order to enhance shareholder value and attain corporate strategic goals. Finally, this study contributes to the on-going debate among policymakers, practitioners, shareholder activists, and academics alike about potential reforms associated with executive compensation contracts.

For future research opportunities in the area of CEO contracts, some limitations of this research are discussed. First, while this paper employs a unique dataset on employment contract details that garners the most recent data in existence, the sample period ranges from 1993 to 2005 (post-acquisition risk measures from 1996 to 2008 as the dependent variables). I choose not to extend the data further as the few studies on severance contracts or employment agreements have a similar sample period as this study. By focusing on a similar time frame, I am able to compare my results with existing literature and draw definite conclusions, without concerns about whether results differ due to a sample period change or such. In future research, it is worthwhile to extend the data to more recent periods and continue to offer new insights into the new era.

Another caveat with the study is that the sample focuses on S&P 500 companies, the more established, larger, publicly-traded firms rather than riskier, smaller, and/or private companies. Future research may significantly advance our understanding of CEO compensation agreements and the contracting process by focusing on smaller and/or private firms, which is likely to offer different, new insights given the different firm characteristics, operating environment, and information structure.

## REFERENCES

1. Almazan, A., & Suarez, J. (2003). Entrenchment and severance pay in optimal governance structures. *Journal of Finance*, 58(2), 519-547. <https://doi.org/10.1111/1540-6261.00536>
2. Armstrong, C., Larcker, D., Ormazabal, G., & Taylor, D. (2013). The relation between equity incentives and misreporting: The role of risk-taking incentives. *Journal of Financial Economics*, 109(2), 327-350. <https://doi.org/10.1016/j.jfineco.2013.02.019>
3. Armstrong, C., & Vashishtha, R. (2012). Executive stock options, differential risk-taking incentives, and firm value. *Journal of Financial Economics*, 104(1), 70-88. <https://doi.org/10.1016/j.jfineco.2011.11.005>
4. Atanassov, J. (2013). Do hostile takeovers stifle innovation? Evidence from antitakeover legislation and corporate patenting. *Journal of Finance*, 68(3), 1097-1131. <https://doi.org/10.1111/jofi.12019>
5. Bebchuk, L., Cohen, A., & Ferrell, A. (2009). What matters in corporate governance? *The Review of Financial Studies*, 22(2), 783-827. <https://doi.org/10.1093/rfs/hhn099>
6. Bebchuk, L., & Fried, J. (2003). Executive compensation as an agency problem. *Journal of Economic Perspectives*, 17(3), 71-92. <https://doi.org/10.1257/089533003769204362>
7. Bebchuk, L., & Fried, J. (2004). *Pay without Performance: The Unfulfilled Promise of Executive Compensation*. Harvard University Press, Cambridge.
8. Bebchuk, L., & Fried, J. (2010). Paying for long-term performance. *University of Pennsylvania Law Review*, 158, 1915-1959. <https://doi.org/10.2139/ssrn.1535355>
9. Bertrand, M., & Mullainathan, S. (2003). Enjoying the quiet life? Corporate governance and managerial preferences. *Journal of Political Economy*, 111(5), 1043-1075. <https://doi.org/10.1086/376950>
10. Bizjak, J., Lemmon, M., & Naveen, L. (2008). Does the use of peer groups contribute to higher pay and less efficient compensation? *Journal of Financial Economics*, 90(2), 152-168. <https://doi.org/10.1016/j.jfineco.2007.08.007>
11. Bolton, P., Scheinkman, J., & Xiong, W. (2006). Executive compensation and short-termist behavior in speculative markets. *Review of Economic Studies*, 73(3), 577-610. <https://doi.org/10.1111/j.1467-937X.2006.00388.x>
12. Boone, A., Field, L., Karpoff, J., & Raheja, C. (2007). The determinants of corporate board size and composition: An empirical analysis. *Journal of Financial Economics*, 85(1), 65-101. <https://doi.org/10.1016/j.jfineco.2006.05.004>
13. Borokhovich, K., Parrino, R., & Trapani, T. (1996). Outside directors and CEO selection. *Journal of Financial and Quantitative Analysis*, 31(3), 337-355. <https://doi.org/10.2307/2331395>
14. Brown, K., Jha, R., & Pacharn, P. (2015). Ex ante CEO severance pay and risk-taking in the financial services sector. *Journal of Banking and Finance*, 59, 111-126. <https://doi.org/10.1016/j.jbankfin.2015.04.027>

15. Cassell, C., Huang, S., Sanchez, J., & Stuart, M. (2012). Seeking safety: The relation between CEO inside debt holdings and the riskiness of firm investment and financial policies. *Journal of Financial Economics*, 103(3), 588-610. <https://doi.org/10.1016/j.jfineco.2011.10.008>
16. Coles, J. L., Daniel, N. D., & Naveen, L. (2006). Managerial incentives and risk-taking. *Journal of Financial Economics*, 79(2), 431-468. <https://doi.org/10.1016/j.jfineco.2004.09.004>
17. Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fit all? *Journal of Financial Economics*, 87(2), 329-356. <https://doi.org/10.1016/j.jfineco.2006.08.008>
18. Coles, J. L., Daniel, N. D., & Naveen, L. (2014). Co-opted boards. *The Review of Financial Studies*, 27(6), 1751-1796. <http://www.jstor.org/stable/24465650>
19. Cotter, J., & Zenner, M. (1994). How managerial wealth effects the tender offer process. *Journal of Financial Economics*, 35(1), 63-97. [https://doi.org/10.1016/0304-405X\(94\)90018-3](https://doi.org/10.1016/0304-405X(94)90018-3)
20. Edmans, A., Fang, V., & Lewellen, K. (2017). Equity vesting and investment. *Review of Financial Studies*, 30(7), 2229-2271. <https://doi.org/10.1093/rfs/hhx018>
21. Edmans, A., & Gabaix, X. (2016). Executive compensation: A modern primer. *Journal of Economic Literature*, 54(4), 1232-1287. <https://doi.org/10.1257/jel.20161153>
22. Ferris, S., Jagannathan, M., & Pritchard, A. C. (2003). Too busy to mind the business? Monitoring by directors with multiple board appointments. *The Journal of Finance*, 58(3), 1087-1111. <https://doi.org/10.1111/1540-6261.00559>
23. Frydman, C., & Jenter, D. (2010). Executive compensation. *Annual Review of Financial Economics* 2, 75-102. <https://doi.org/10.1146/annurev-financial-120209-133958>
24. Fudenberg, D., Holmstrom, B., & Milgrom, P. (1990). Short-term contracts and long-term agency relationships. *Journal of Economic Theory*, 51(1), 1-31. [https://doi.org/10.1016/0022-0531\(90\)90048-0](https://doi.org/10.1016/0022-0531(90)90048-0)
25. Garmaise, M. (2011). Ties that truly bind: Non-competition agreements, executive compensation and firm investment. *The Journal of Law, Economics, and Organization*, 27(2), 376-425. <https://doi.org/10.1093/jleo/ewp033>
26. Geithner, T. (2009, June 10). *Statement by Treasury Secretary Tim Geithner on compensation* [Press release]. U.S. Department of the Treasury. <https://home.treasury.gov/news/press-releases/tg163>
27. Gillan, S., Hartzell, J., & Parrino, R. (2009). Explicit vs. implicit contracts: Evidence from CEO employment agreements. *The Journal of Finance*, 64(4), 1629-1655. <https://doi.org/10.1111/j.1540-6261.2009.01475.x>
28. Gillan, S., Hartzell, J., & Starks, L. (2011). Tradeoffs in corporate governance: Evidence from board structures and charter provisions. *The Quarterly Journal of Finance*, 1(4), 667-705. <https://doi.org/10.1142/S2010139211000183>
29. Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, 118(1), 107-155. <https://doi.org/10.1162/00335530360535162>
30. Gopalan, R., Milbourn, T., Song, F., & Thakor, A. (2014). Duration of executive compensation. *The Journal of Finance*, 69(6), 2777-2817. <https://doi.org/10.1111/jofi.12085>
31. Gormley, T., Matsa, D., & Milbourn, T. (2013). CEO compensation and corporate risk: Evidence from a natural experiment. *Journal of Accounting and Economics*, 56(2-3), 79-101. <https://doi.org/10.1016/j.jacceco.2013.08.001>
32. Graham, J., Harvey, C., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, 40(1-3), 3-73. <https://doi.org/10.1016/j.jacceco.2005.01.002>
33. Greene, W. H. (2002). *Econometric Analysis* (5th ed.). Prentice Hall, Upper Saddle River. <https://spu.fem.uniag.sk/~cvcenia/ksov/obtulovic/Mana%C5%BE.%20%C5%A1tatistika%20a%20ekonometria/EconometricsGREENE.pdf>
34. Guay, W. R. (1999). The sensitivity of CEO wealth to equity risk: An analysis of the magnitude and determinants. *Journal of Financial Economics*, 53(1), 43-71. [https://doi.org/10.1016/S0304-405X\(99\)00016-1](https://doi.org/10.1016/S0304-405X(99)00016-1)
35. Hall, B., & Liebman, J. (1998). Are CEOs really paid like bureaucrats? *The Quarterly Journal of Economics*, 113(3), 653-691. <https://doi.org/10.1162/003355398555702>
36. Harford, J., & Li, K. (2007). Decoupling CEO wealth and firm performance: The case of acquiring CEOs. *The Journal of Finance*, 62(2), 917-949. <https://doi.org/10.1111/j.1540-6261.2007.01227.x>
37. Harris, E. (1990). Antitakeover measures, golden parachutes, and target firm shareholder welfare. *The RAND Journal of Economics*, 21(4), 614-625. <https://www.jstor.org/stable/2555472>
38. Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica*, 47(1), 153-161. <https://doi.org/10.2307/1912352>
39. Huson, M., Parrino, R., & Starks, L. (2001). Internal monitoring mechanisms and CEO turnover: A long-term perspective. *The Journal of Finance*, 56(6), 2265-2297. <https://doi.org/10.1111/0022-1082.00405>
40. Inderst, R., & Mueller, H. (2010). CEO replacement under private information. *The Review of Financial Studies*, 23(8), 2935-2969. <https://doi.org/10.1093/rfs/hhq018>
41. Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
42. Jensen, M., & Murphy, K. (1990a). CEO incentives: It's not how much you pay, but how. *Harvard Business Review*, 3, 138-153. <https://ssrn.com/abstract=146148>
43. Jensen, M., & Murphy, K. (1990b). Performance pay and top management incentives. *Journal of Political Economy*, 98(2), 225-265. <https://doi.org/10.1086/261677>
44. Ju, N., Leland, H., & Senbet, L. (2002). Options, option repricing and severance packages in managerial compensation: Their effects on corporate risk. *SSRN*. <https://doi.org/10.2139/ssrn.346920>
45. Kedia, S., & Rajgopal, S. (2009). Neighborhood matters: The impact of location on broad based stock option plans. *Journal of Financial Economics*, 92(1), 109-127. <https://doi.org/10.1016/j.jfineco.2008.03.004>
46. Kole, S. (1997). The complexity of compensation contracts. *Journal of Financial Economics*, 43(1), 79-104. [https://doi.org/10.1016/S0304-405X\(96\)00888-4](https://doi.org/10.1016/S0304-405X(96)00888-4)
47. Kolenikov, S., & Angeles, G. (2004). *The use of discrete data in PCA: Theory, simulations, and applications to socioeconomic indices* (Working Paper WP-04-85, MEASURE Evaluation). University of North Carolina at Chapel Hill. <https://www.measureevaluation.org/resources/publications/wp-04-85.html>
48. Laux, V. (2015). Executive pay, innovation, and risk-taking. *Journal of Economics & Management Strategy*, 24(2), 275-305. <https://doi.org/10.1111/jems.12090>
49. Linck, J., Netter, J., & Yang, T., 2008. The determinants of board structure. *Journal of Financial Economics*, 87(2), 308-328. <https://doi.org/10.1016/j.jfineco.2007.03.004>

50. Low, A. (2009). Managerial risk-taking behavior and equity-based compensation. *Journal of Financial Economics*, 92(3), 470-490. <https://doi.org/10.1016/j.jfineco.2008.05.004>
51. Maddala, G. (1983). *Limited-dependent and qualitative variables in econometrics*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511810176>
52. Manso, G. (2011). Motivating innovation. *The Journal of Finance*, 66(5), 1823-1860. <https://doi.org/10.1111/j.1540-6261.2011.01688.x>
53. Mehran, H. (1995). Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics*, 38(2), 163-184. [https://doi.org/10.1016/0304-405X\(94\)00809-F](https://doi.org/10.1016/0304-405X(94)00809-F)
54. Meulbroek, L., Mitchell, M., Mulherin, H., Netter, J., & Poulsen, A. (1990). Shark repellents and managerial myopia: An empirical test. *Journal of Political Economy*, 98(5), 1108-1117. <https://doi.org/10.1086/261721>
55. Mitchell, M., & Mulherin, H. (1996). The impact of industry shocks on takeover and restructuring activity. *Journal of Financial Economics*, 41(2), 193-229. [https://doi.org/10.1016/0304-405X\(95\)00860-H](https://doi.org/10.1016/0304-405X(95)00860-H)
56. Mulherin, H., & Boone, A. (2000). Comparing acquisitions and divestitures. *Journal of Corporate Finance*, 6(2), 117-139. [https://doi.org/10.1016/S0929-1199\(00\)00010-9](https://doi.org/10.1016/S0929-1199(00)00010-9)
57. Murphy, K. J. (1999). Executive compensation. In O. Ashenfelter, & D. Card (Eds.), *Handbook of labor economics* (Volume 3B, pp. 2485-2563). Elsevier. [https://doi.org/10.1016/S1573-4463\(99\)30024-9](https://doi.org/10.1016/S1573-4463(99)30024-9)
58. Murphy, K. J. (2013). Executive compensation: Where we are and how we got there. In G. Constantinides, M. Harris, & R. Stulz (Eds.), *Handbook of the economics of finance* (Volume 2A, pp. 211-356). Elsevier. <https://doi.org/10.1016/B978-0-44-453594-8.00004-5>
59. Muscarella, C., & Zhao, J. (2011). *Promoting the quiet life or risk-taking? CEO severance contracts and managerial decision-making?* (AFA 2012 Chicago Meetings Paper). The University of Texas at Austin. <https://ssrn.com/abstract=1787221>
60. Narayanan, M. P. (1985). Managerial incentives for short-term results. *The Journal of Finance*, 40(5), 1469-1484. <https://doi.org/10.1111/j.1540-6261.1985.tb02395.x>
61. Prendergast, C., & Stole, L. (1996). Impetuous youngsters and jaded old-timers: Acquiring a reputation for learning. *Journal of Political Economy*, 104(6), 1105-1134. <https://doi.org/10.1086/262055>
62. Rau, R., & Xu, J. (2013). How do ex-ante severance pay contracts fit into optimal executive incentive schemes? *Journal of Accounting Research*, 51(3), 631-671. <https://doi.org/10.1111/joar.12001>
63. Rusticus, T. (2006). *Executive severance agreements*. University of Pennsylvania. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=69e38fc572076dd8513f3aa6cee9c3df30a586cc>
64. Stein, J. C. (1988). Takeover threats and managerial myopia. *Journal of Political Economy*, 96(1), 61-80. <https://doi.org/10.1086/261524>
65. Stein, J. C. (1989). Efficient capital markets, inefficient firms: a model of myopic corporate behavior. *The Quarterly Journal of Economics*, 104(4), 655-669. <https://doi.org/10.2307/2937861>
66. Sundaram, R., & Yermack, D. (2007). Pay me later: Inside debt and its role in managerial compensation. *The Journal of Finance*, 62(4), 1551-1588. <https://doi.org/10.1111/j.1540-6261.2007.01251.x>
67. Van Wesep, E. D., & Wang, S. (2014). The prevention of excess managerial risk taking. *Journal of Corporate Finance*, 29, 579-593. <https://doi.org/10.1016/j.jcorpfin.2013.04.008>
68. Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40(2), 185-212. [https://doi.org/10.1016/0304-405X\(95\)00844-5](https://doi.org/10.1016/0304-405X(95)00844-5)
69. Yermack, D. (2004). Remuneration, retention, and reputation incentives for outside directors. *The Journal of Finance*, 59(5), 2281-2308. <https://doi.org/10.1111/j.1540-6261.2004.00699.x>
70. Yermack, D. (2006). Golden handshakes: Separation pay for retired and dismissed CEOs. *Journal of Accounting and Economics*, 41(3), 237-256. <https://doi.org/10.1016/j.jacceco.2006.01.001>
71. Yim, S. (2013). The acquisitiveness of youth: CEO age and acquisition behavior. *Journal of Financial Economics*, 108(1), 250-273. <https://doi.org/10.1016/j.jfineco.2012.11.003>
72. Zhao, J. (2013). Entrenchment or incentive? CEO employment contracts and acquisition decisions. *Journal of Corporate Finance*, 22, 124-152. <https://doi.org/10.1016/j.jcorpfin.2013.04.004>

## APPENDIX A

Table A.1. Variable definitions

<i>Variable</i>	<i>Definitions</i>
<i>Acquirer characteristics:</i>	
Assets (\$ mln)	Book value of total assets [data6].
Sales (\$ mln)	Sales for the fiscal year [data12].
Firm size	Logarithm of sales [Log (data12)].
Leverage ratio	Book value of debts over the market value of total assets [(data34 + data9)/(data6 - data60 + abs(data199) * data25)].
Free cash flow	Free cash flow/book value of assets [(data13 - data15 - data16 - data128)/data6].
Tobin's <i>q</i>	Market value of total assets over book value of total assets [(data6 - data60 + abs(data199) * data25)/data6].
Capex/Assets	Capital expenditure over total assets [data128/data6].
Stock Ret [- <i>t</i> ]	CRSP value-weighted - adjusted buy-and-hold return over last <i>t</i> years.
LnVol [- <i>t</i> ]	Natural logarithm of the standard deviation of daily stock returns over previous <i>t</i> years.
<i>Deal characteristics:</i>	
Deal value (\$ mln)	Value of the transaction from SDC.
Rel. deal value	Deal value over bidder market capitalization measured 42 trading days prior to the announcement.
Pure cash	Dummy variable: 1 if the deal is financed with 100% cash, 0 otherwise.
Pure stock	Dummy variable: 1 if the deal is financed with 100% equity, 0 otherwise.
Tender offer	Dummy variable: 1 if the deal is identified by SDC as a tender offer, 0 otherwise.
Diversifying	Dummy variable: 1 if the acquirer and the target have different two-digit SIC codes, 0 otherwise.
Public target	Dummy variable: 1 if the target is public, 0 otherwise.
Private target	Dummy variable: 1 if the target is private, 0 otherwise.
Subsidiary target	Dummy variable: 1 if the target is a subsidiary, 0 otherwise.
<i>Acquirer CEO characteristics, compensation, and corporate governance:</i>	
CEO age	CEO age in years.
CEO age ≥ 65	Dummy variable: 1 if the executive is older than 65, 0 otherwise.
Tenure	The number of years the executive has worked for the firm.
CEO tenure	The number of years the executive has worked for the firm as the CEO.
CEO experience	The number of years since the executive became a CEO in an S&P 1500 firm for the first time.
Outside CEO	Dummy variable: 1 if the executive has been with the firm for less than or equal to three years, 0 otherwise.
Founder	Dummy variable: 1 if the CEO is a founder or from a founding family, 0 otherwise.
CEO-Chair	Dummy variable: 1 if the CEO is also the Chairman of the Board, 0 otherwise.
Salary (\$000)	The dollar value of the annual base salary (cash and non-cash).
Bonus (\$000)	The dollar value of the bonus (cash and non-cash) during the fiscal year.
Options (\$000)	The total value of stock options granted to the executive during the fiscal year as valued by S&P's Black-Scholes model.
Total pay (\$000)	Total compensation for the fiscal year, comprised of salary, bonus, other annual, restricted stock granted, stock options granted, long-term incentive payouts, and all other totals.
Cash/TotPay	The total value of salary and bonus as a percentage of annual total pay.
Options/TotPay	The total value of new options granted to the executive as a percentage of annual total compensation.
Equity/TotPay	The total value of new restricted stocks and stock options granted as a percentage of annual total pay.
CEO ownership	The percentage of the company's shares owned by the executive.
Institutional ownership	The percentage of the company's shares outstanding owned by institutional investors at quarter end preceding the M&A announcement date.
G-Index	from Gompers et al. (2003).
BCF-Index	An index based on six anti-takeover provisions as in Bebchuk et al. (2009): staggered board, poison pill, supermajority to approve mergers, limits to amend bylaws, limits to amend charters, and golden parachutes.
<i>Board characteristics and other related managerial incentives:</i>	
Board size	Total number of directors on the board.
Board independence	The percentage of independent directors (Number of independent directors/Board size).
Busy board	The percentage of directors with three or more directorships (Ferris et al., 2003).
TW co-option	Tenure-Weighted co-option (Number of director years served since the CEO assumed the position/the number of years served on the board by all directors) (Coles et al., 2014).
%Female	The fraction of female directors (Number of female directors/Board size).
Classified board	Boards that do not elect all directors annually rather the elections are staggered over multiple years.
Poison pill	Dummy variable: 1 for the existence of poison pill as an anti-takeover provision, which gives the holders of the target's stock other than the bidder the right to purchase stock in the target or the bidder's company at a steep discount, making the target unattractive or diluting the acquirer's voting power.
Compensation plan	Dummy variable: 1 if the firm has a compensation plan, which with changes-in-control provisions allows participants in incentive bonus plans to cash out options or accelerate the payout of bonuses if there should be a change in control.
Standalone severance	Dummy variable: 1 if the CEO has a standalone severance agreement but not those included in a single, comprehensive employment contract.
Change-in-Control (Golden Parachutes)	Dummy variable: 1 if the CEO has a separate change-in-control agreement, in terms of a standalone change-in-control agreement, or contained in a severance contract, but not those included in a single comprehensive employment contract.
<i>Instruments:</i>	
Industry contract ratio	The proportion of all S&P 500 CEOs in the same two-digit SIC industry that has an employment contract as of the fiscal year end preceding the event date.
State contract ratio	The proportion of all S&P 500 CEOs headquartered in the same state that has an employment contract as of the fiscal year end preceding the event date.

Note: The data number is the CompStat data item number.

## APPENDIX B

## Heckman's two-stage self-selection model

To the extent that the choice of a CEO contract is not random or exogenous but rather determined by firm and CEO characteristics, the simple OLS regressions of risk-taking on individual contract provisions may produce biased estimates. To address this sample selection bias, I employ the Heckman (1979) two-stage sample selection model as follows:

$$C_i^* = f(B_{ci} - B_{ni}) = Z_i\gamma + u_i \quad (\text{B.1})$$

$$C_i = 1 \text{ (Kontrakt)} \quad \text{if } C_i^* > 0$$

$$C_i = 0 \text{ (No kontrakt)} \quad \text{otherwise}$$

where  $C_i^*$  is a latent variable that is a function of the difference between the net benefits of having a contract ( $B_{ci}$ ) and those of having no contract ( $B_{ni}$ ); subscript  $c$  denotes contract and  $n$  no contract. Note that  $C_i^*$  is determined by the explanatory variables measuring benefits and costs associated with using a contract ( $Z_i$ ) and  $u_i$  is the error term. Equation (B.1) is the criterion function that determines whether a contract is used or not. A contract is used ( $C_i = 1$ ) only if the benefits of using a contract exceed those of not using one ( $C_i^* > 0$ ), and not used ( $C_i = 0$ ) otherwise. The relationship between managerial risk-taking and individual contract provisions can be characterized as the following two switching regimes model:

$$\text{Contract regime:} \quad Risk_{ci} = X_i\beta_c + \varepsilon_{ci} \quad (\text{B.2})$$

$$\text{No contract regime:} \quad Risk_{ni} = X_i\beta_n + \varepsilon_{ni} \quad (\text{B.3})$$

where, equation (B.2) characterizes the relationship between risk-taking ( $Risk_{ci}$ ) and individual contract provisions as well as other determinants ( $X_i$ ) for acquirers with a CEO contract and equation (B.3) for acquirers without a contract. The criterion function (B.1) determines which of the two regimes is applicable: the contract regime occurs if  $C_i = 1$  and no contract regime otherwise.

The simple OLS regressions produce biased estimates. This is because a self-selection issue occurs to the extent that I do not observe what  $Risk_{ci}$  would have been should the acquirers without a CEO contract choose to use one. Similarly, I do not observe what  $Risk_{ni}$  would have been should acquirers with a CEO contract choose not to use one. In essence, I observe only part of the entire population for each regime due to self-selection. In other words, the OLS regressions assume a zero correlation between  $u_i$  and  $\varepsilon_{ci}$ , and between  $u_i$  and  $\varepsilon_{ni}$ , while the self-selection issue occurs to the extent that the correlations are not zero.

To see this more directly, the conditional expectation for each regime is described below:

$$E(Risk_{ci}|X_{ci}, C_i = 1) = X_{ci}\beta_c + E(\varepsilon_{ci}|X_{ci}, C_i = 1) = X_{ci}\beta_c - \frac{\phi(Z_i\gamma)}{\Phi(Z_i\gamma)}\sigma_{1,2} \quad (\text{B.4})$$

$$E(Risk_{ni}|X_{ni}, C_i = 0) = X_{ni}\beta_n + E(\varepsilon_{ni}|X_{ni}, C_i = 0) = X_{ni}\beta_n + \frac{\phi(Z_i\gamma)}{1 - \Phi(Z_i\gamma)}\sigma_{1,3} \quad (\text{B.5})$$

where,  $\phi$  is the standard normal density function,  $\Phi$  is the standard normal cumulative distribution function,  $\sigma_{1,2}$  is the correlation between the error terms of equation (B.1),  $u_i$ , and equation (B.2),  $\varepsilon_{ci}$ , and  $\sigma_{1,3}$  is the correlation between the error terms of equation (B.1),  $u_i$ , and equation (B.3),  $\varepsilon_{ni}$ . Take equation (B.4) for example, if the error terms in equations (B.1) and (B.2) are correlated, then  $E(\varepsilon_{ci}|X_{ci}, C_i = 1) \neq 0$ , and the simple OLS regressions are biased. Similar is true for equation (B.5).

One way to derive consistent estimates of the parameters in this system of equations is the Heckman two-stage procedure. In the first stage, I obtain an estimate of  $\gamma$  ( $\hat{\gamma}$ ) using the probit maximum likelihood (ML) method, with observations  $C_i$  (1/0) for the full sample. I then estimate the inverse Mills ratio:  $-\frac{\phi(Z_i\hat{\gamma})}{\Phi(Z_i\hat{\gamma})}$  for the contract and  $\frac{\phi(Z_i\hat{\gamma})}{1 - \Phi(Z_i\hat{\gamma})}$  for the no contract regime. To more specifically examine the effects of individual contract provisions on risk-taking, in the second stage, I estimate equation (B.4) by OLS using the contract subsample only (i.e., observations  $X_{ci}$ ), with the inverse Mills ratio as an additional regressor. This procedure produces consistent estimates of  $\beta_c$  and  $\sigma_{1,2}$  for the contract regime. Note that the coefficient on the inverse Mills ratio ( $\sigma_{1,2}$ ) is the correlation between the error terms of equations (B.1) and (B.2).

## APPENDIX C

Table C.1. Inter-temporal and industry distributions of M&amp;As

<i>Panel A: Sample distribution by announcement year</i>									
Year	No. of deals			Average deal value (\$ mln)			Average relative deal value (%)		
	All	Contract	No Contract	All	Contract	No Contract	All	Contract	No Contract
1993	24	7	17	1,080	1,335	976	17.69	20.80	16.41
1994	30	12	18	1,441	1,337	1,511	29.00	35.15	24.90
1995	31	16	15	2,775	3,245	2,274	28.11	25.41	31.00
1996	62	31	31	2,572	993	4,150	28.47	28.76	28.18
1997	42	15	27	1,917	1,654	2,064	34.27	23.55	40.22
1998	84	46	38	4,155	3,959	4,393	33.83	37.80	29.02
1999	63	34	29	5,162	4,310	6,161	41.15	47.83	33.32
2000	68	32	36	5,049	3,952	6,024	37.42	30.58	43.51
2001	41	22	19	3,737	2,761	4,867	24.75	30.78	17.77
2002	29	14	15	1,884	2,583	1,232	13.03	11.82	14.15
2003	39	23	16	2,169	1,815	2,677	24.76	23.43	26.68
2004	37	26	11	1,516	1,780	893	21.39	24.59	13.83
2005	27	15	12	4,467	3,300	5,926	18.38	19.51	16.97
Total	577	293	284	3,261	2,807	3,730	29.45	30.29	28.59
%	100	50.8	49.2						

<i>Panel B: Sample distribution by twelve Fama-French industry</i>					
	Industry	No. of deals (% of full sample)			% within industry
		All	Contract	No contract	Contract
1.	Consumer non-durables	53 (9.2)	18 (3.1)	35 (6.1)	34.0
2.	Consumer durables	14 (2.4)	7 (1.2)	7 (1.2)	50.0
3.	Manufacturing	98 (17.0)	38 (6.6)	60 (10.4)	38.8
4.	Energy	45 (7.8)	28 (4.9)	17 (3.0)	62.2
5.	Chemicals	26 (4.5)	8 (1.4)	18 (3.1)	30.8
6.	Electronics	83 (14.4)	38 (6.6)	45 (7.8)	45.8
7.	Telecom	20 (3.5)	10 (1.7)	10 (1.7)	50.0
8.	Utilities	42 (7.3)	19 (3.3)	23 (4.0)	45.2
9.	Wholesale & retail	44 (7.6)	22 (3.8)	22 (3.8)	50.0
10.	Medicals	58 (10.1)	35 (6.1)	23 (4.0)	60.3
11.	Financial services	52 (9.0)	37 (6.4)	15 (2.6)	71.2
12.	Other: Hotels, entertainment, etc.	42 (7.3)	33 (5.7)	9 (1.6)	78.6

Note: Sample distribution by announcement year and twelve Fama-French industries. The full sample consists of 577 U.S. M&As announced and completed by S&P 500 CEOs during 1993–2005. Contract denotes M&As made by acquirer CEOs with an employment contract as of the announcement date, and no-contract by CEOs without a contract. Appendix A provides variable definitions. Deal value (in the 2005 constant dollars) and relative deal value are winsorized at the 1% and 99% levels.

Table C.2. Summary statistics

<i>Characteristic object</i>	<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>
Deal characteristics:	Deal value (\$ mln)	577	3,261	982	5738
	Relative deal value	577	0.295	0.142	0.355
	Total cash	577	0.397	0.000	0.490
	Total stock	577	0.231	0.000	0.422
	Tender offer	577	0.128	0.000	0.335
	Hostile deal	577	0.028	0.000	0.164
	Diversifying deal	577	0.478	0.000	0.500
	Public target	577	0.548	1.000	0.498
	Private target	577	0.139	0.000	0.346
Firm characteristics:	Subsidiary target	577	0.314	0.000	0.464
	Book assets (\$ mln)	577	15,108	4,751	39,820
	Sales (\$ mln)	577	8,637	4,390	12,509
	Tobin's <i>Q</i>	577	2.238	1.743	1.656
	Free cash flow	577	0.045	0.047	0.067
	Leverage	577	0.155	0.127	0.125
	Capex/Assets	577	0.056	0.046	0.049
	Stock return [-3]	577	0.659	0.063	3.021
	Stock return vol. [-3]	577	0.023	0.021	0.010
CEO and corporate governance:	G-Index	577	9.920	10.000	2.748
	BCF-Index	577	1.646	2.000	1.127
	Institutional ownership	577	0.684	0.698	0.153
	CEO ownership	577	0.012	0.002	0.032
	CEO equity/Total pay	577	0.492	0.492	0.280
	CEO-Chair	577	0.773	1.000	0.419
	Founder CEO	577	0.158	0.000	0.365
	Tenure	577	17.931	15.000	12.526
	CEO tenure	577	7.291	5.000	7.432
	CEO experience	577	7.492	5.000	7.504
	Outside CEO	577	0.113	0.000	0.316
	CEO age	577	56.031	56.000	6.814
	CEO age ≥ 65	577	0.088	0.000	0.284
Board characteristics:	Board size	480	10.638	10.000	2.577
	Board independence	480	0.671	0.700	0.167
	Busy board	343	0.151	0.111	0.095
	TW Co-option	379	0.332	0.164	0.351
	% Female	333	0.145	0.125	0.070
	Classified board	577	0.633	1.000	0.483
	Poison pill	577	0.589	1.000	0.492
	Compensation plan	577	0.754	1.000	0.431
	Standalone severance	577	0.123	0.000	0.329
	Change-in-Control	577	0.461	0.000	0.499
Instruments	Industry contract ratio	576	0.412	0.385	0.212
	State contract ratio	500	0.448	0.455	0.234

Note: This table presents summary statistics for the key variables used in the analyses. The full sample consists of 577 U.S. M&As announced and completed by S&P 500 CEOs during 1993–2005. All variables are defined in Appendix A.

Table C.3. Probit regression predicting the use of a CEO employment contract

<i>Variable</i>	<i>Dependent variables = Contract</i>
Industry contract ratio	2.850*** (2.72)
State contract ratio	4.258*** (3.12)
Board size	-0.082 (-1.36)
Board independence	4.086*** (2.70)
Busy board	-2.245** (-1.99)
TW Co-option	-0.921 (-1.30)
% Female	0.892 (0.69)
Classified board	0.759** (2.21)
Poison pill	0.390 (1.14)
Compensation plan	-0.223 (-0.79)
Standalone severance	0.570* (1.67)
Change-in-Control (Golden parachutes)	-2.002*** (-3.14)
Ln (Assets)	-0.471*** (-2.69)
Tobin's Q	-0.351** (-2.37)
Leverage	-1.317 (-0.83)
Capex/Assets	-9.462** (-2.54)
Stock return [-3]	0.120* (1.82)
LnVol [-3]	0.422 (0.90)
G-Index	0.002 (0.03)
BCF-Index	-0.573** (-2.08)
Institutional ownership	-1.848* (-1.92)
CEO ownership	-13.863 (-1.57)
Equity/Total pay	-0.690 (-1.17)
CEO-Chair	0.772** (2.05)
Founder CEO	-1.023* (-1.96)
Tenure	-0.044** (-2.39)
CEO tenure	-0.123 (-0.73)
CEO experience	0.184 (1.01)
Outside CEO	1.735** (2.34)
CEO age	-0.046 (-1.60)
CEO age ≥ 65	1.660** (2.40)
Industry & Year Fixed Effects	Yes
N	262
Pseudo R2	0.821
Log Likelihood	-32.52

Note: This table presents marginal effects from probit regressions predicting the use of a CEO employment contract. The dependent variable is Contract, equal to one if the CEO has a contract as of the event date and zero otherwise. The event date is the announcement date for the M&A deal. All variables and instruments are defined in Appendix A and measured at the fiscal year end preceding the event date. Partial derivatives are evaluated at the mean (zero) for continuous (binary) variables. \*\*\*, \*\*, and \* denote significance at the 1%, 5% and 10% levels.