

Swiss Finance Institute
Research Paper Series N°11 – 14

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CEO Contract Design: How Do Strong Principals Do It?^{*}

Henrik Cronqvist and Rüdiger Fahlenbrach^{**}

This draft: March 14, 2011

Abstract

We study changes in the design of CEO contracts when firms transition from being public with dispersed shareholders to having strong principals in the form of private equity sponsors. These principals redesign some, but far from all, contract characteristics. There is no evidence that they reduce excessive salary, bonus, and perquisites, but they redesign contracts away from earnings-based and non-financial bonus criteria. They do not change CEO severance cash pay, but they redesign contracts so unvested equity is forfeited by terminated CEOs, and they restrict the resale market for equity. CEO contracts are also redesigned so that a significant fraction of equity grants performance-vests: if the agent does not produce prespecified multiples or IRRs, the equity is forfeited. We find that even these sophisticated principals rely on subjective performance evaluation, use some time-vesting equity, do not use premium options, and do not condition vesting on relative industry performance. We compare the real-world contracts in our sample to contracting theories, and we relate our findings to recent discussions of executive compensation reform.

Keywords: Executive compensation; employment contracts; contracting theory; LBOs

JEL codes: G30; G34; J33

^{*}We thank Harry DeAngelo, Rajna Gibson, Mike Lemmon, Ron Masulis, Ludovic Phalippou, Pascal St. Amour, Per Strömberg, René Stulz, Mike Weisbach, senior executives in the U.S. private equity industry, and seminar participants at Geneva Finance Research Institute and University of Lausanne (Department of Economics) for helpful discussions and comments. Jennifer Volk provided excellent research assistance. Financial support from the Financial Economics Institute at Claremont McKenna College (Cronqvist) and the Swiss Finance Institute and the Swiss National Science Foundation (Fahlenbrach) is gratefully acknowledged.

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1. Introduction

The past decade has seen intense academic debate over whether CEO contracts in the U.S. are set optimally for each firm to align the incentives of CEOs and shareholders, or whether they are unduly influenced by powerful CEOs, who impose their own wishes on the firm's board to extract excessive pay and other private benefits. In a widely cited book, Bebchuk and Fried (2004) identify several practices that appear inconsistent with incentive-compatible contracts: "pay for luck," the absence of performance-vesting, very short vesting periods, no restrictions on unwinding equity after vesting, and excessive severance pay packages. However, other economists have concluded that CEO compensation contracts overall appear efficient (e.g., Holmström and Kaplan (2003), Murphy and Zabojnik (2004), and Edmans and Gabaix (2009)).

In this paper, we examine in detail the changes to CEO contract design when a firm transitions from being a public firm with more or less dispersed shareholders, to one where a strong principal is in control. We study sophisticated and financially savvy principals – private equity sponsors – who have long track records related to the design of contracts for their agents, i.e., the CEOs of their portfolio companies.

Our objective is to answer three questions. First, do strong principals redesign CEO contracts? If they do, which specific contractual characteristics do they change? Which do they not redesign? We examine a comprehensive set of characteristics of CEO contracts in addition to cash pay, such as perquisites, severance pay, equity incentives, and vesting conditions. Second, how do these CEO contracts designed by strong principals square with contracting theories? To what extent do real-world CEO contracts resemble the predicted ones? We attempt to inform theory by comparing the real-world contracts in our sample to those predicted by principal-agent, perquisite, and severance pay theories. Finally, do the CEO contracts we study look like those that would be the result of recently proposed executive compensation reform in the U.S.? Regulators and shareholder interest groups alike should be

interested in whether their proposals differ markedly from equilibrium contracts resulting from market forces where a strong principal designs and bargains a contract with a CEO.

If one wants to study changes in CEO contracting after the arrival of a strong principal in a firm, a natural empirical approach is to compare compensation and employment contract design just prior to versus right after private equity transactions.¹ We are aware of only two existing studies which have taken an approach similar to ours. Baker and Wruck (1989) study O.M. Scott & Sons Company pre- and post LBO in the 1980s LBO wave, and they find important changes to the CEO compensation contract as a result of the PE transaction. Similarly, Denis (1994) finds important changes in Safeway after its LBO. A detailed study of CEO contracts in a larger sample of firms going private has been impeded by the unavailability of data.

We employ a new, hand-collected data set of CEO employment contracts, equity incentive plans, and equity rollover agreements. We recognize that the final sample available for our analysis is small and non-random by involving only large firms and the largest private equity sponsors in the U.S. As a result, we are careful with respect to what can and cannot be concluded from our research. We also argue that our data provide several advantages despite the shortcomings. First, while we may have selected large, sophisticated private equity sponsors that have been successful in the past, this could potentially strengthen our analysis because we are more likely to have selected value-maximizing principals. Second, the success of the firm is uncertain right after the LBO, enabling us to study how the principals design contracts *ex ante* rather than relying on *ex post* data that may be distorted by (the anticipation of) a liquidity event. Finally, we have learned a lot from studies of private equity sponsors as principals in the 1980s LBO wave (e.g., Baker and Wruck (1989) and Denis (1994)) and large shareholders as principals (e.g., DeAngelo and DeAngelo (2000) and Becht et al. (2009)), though the sample size is one in each of those studies.

¹ Jensen (1989) has long claimed that leveraged buyouts are the “dominant organizational form.” Part of the conjectured superiority of LBOs stems from the significant equity incentives of management post-LBO. While previous research has established that executives own more equity in LBO-sponsored firms (e.g., Kaplan (1989) and Leslie and Oyer (2009)), very little is known about whether private equity sponsors change other characteristics of CEO contracts.

Our empirical evidence can be summarized as follows. We find that the strong principals redesign several, but not all, CEO contract characteristics. We find surprisingly little evidence of a change in the dollar amounts of base salary or bonus, which is not consistent with the principals regarding compensation in public firms as excessive. Instead, the most significant change regarding cash pay is with respect to bonus criteria. Private equity sponsors redesign contracts away from qualitative, non-financial measures such as “employee satisfaction” and measures such as EPS, which can be easily manipulated by the agent. Instead, they contract on criteria such as EBITDA that measure the firm’s ability to service its debt and that allow for less accounting discretion with respect to, e.g., treatment of depreciation or amortization. Consistent with principal-agent models and the informativeness principle (e.g., Holmström (1979), Harris and Raviv (1979), and Innes (1990)), we find that the strong principals design contracts with several different signals correlated with the CEO’s effort, e.g., EBITDA for year-to-year performance and IRRs or multiples for longer-term performance. We also find that perquisites, including personal usage of corporate aircraft and tax gross-ups, remain unchanged in the presence of a strong principal in the firm, which is more consistent with “perks as productivity” than “perks as private benefits” (e.g., Rajan and Wulf (2006)).

We also find surprisingly little evidence of a change in the dollar amount of CEO severance cash pay. The most significant change is instead that CEO contracts are redesigned so that unvested options and restricted stock are forfeited if the CEO is terminated. In addition, the strong principals contractually restrict the resale market for vested shares for terminated executives by a right of first refusal and by limiting the set of people executives can sell to, which makes it virtually impossible for dismissed CEOs to unwind equity incentives. In relation to existing severance pay theories, the principals we study redesign CEO contracts broadly consistent with Almazan and Suarez (2003), whose model predicts that severance pay will be less favorable to a CEO when governance is stronger (if less favorable vesting and resale conditions are considered severance “pay”).

Finally, we find that CEO contracts are redesigned with respect to equity grants, not only through more CEO equity ownership, but through vesting and other conditions. The most significant changes are

that the strong principals substitute options with restricted stock, and that the vast majority use some performance-vesting post-LBO. A common contract is that unless the agent produces certain multiples or IRRs for the principal, about 50 percent of equity grants will be forfeited. Importantly, while we find that the strong principals design contracts such that the CEO's compensation is very sensitive to the signal of effort, they do not rely exclusively on performance-vesting equity. Even the sophisticated and financially savvy principals we study rely to a significant extent on subjective performance evaluation, through time-vesting of equity, consistent with multi-tasking models (e.g., Holmström and Milgrom (1991) and Baker (1992)). The principals also design CEO contracts consistent with screening models predicting that performance-sensitive contracts will be preferred by better managers (e.g., Lazear (1986)) because CEOs are required to buy in at the LBO. For CEOs who are retained at the LBO, we find, somewhat surprisingly, that the average cash-out is larger than the buy-in. Finally, we find only limited evidence of premium options, and we find no evidence of contractual relative performance evaluation in which vesting is conditional on industry performance.

Several caveats apply to our conclusions. First, our approach assumes that the private equity sponsors are value maximizing principals. We argue that this is a reasonable assumption given existing evidence (e.g., Kaplan (1989), Guo, Hotchkiss, and Song (2009), and Lerner, Sorensen, and Strömberg (2008)). The principals we study appear to have strong incentives to maximize value, receive few private benefits of control, and the partners controlling the sponsor receive at least 20 percent of the value-added.² Second, our approach assumes that the redesign of the CEO contract is driven by the arrival of a strong principal in the firm, and not merely by the change in capital structure. Denis (1994), Denis and Denis (1993), and Wruck (1994) analyze changes in governance following voluntary leveraged recapitalizations. Their results show that there is a strong effect on governance driven by the arrival of private equity sponsors, in addition to any effect related to capital structure changes.

² We recognize that some researchers have recently estimated that as much as two-thirds of the expected revenues for large LBO funds come from fees that are not performance-sensitive, as opposed to value-added as carried interest (e.g., Metrick and Yasuda (2010)).

The paper is related to several additional strings of the corporate finance literature, e.g., studies of the performance of private equity sponsored firms in the 1980s LBO wave (e.g., Kaplan (1989), Lichtenberg and Siegel (1990), and Smith (1990)), and more recently (e.g., Guo, Hotchkiss, and Song (2009)).³ More specifically, our paper is related to work on changes in governance pre- and post-LBO. Gertner and Kaplan (1996) and Cornelli and Karakas (2008) examine one governance mechanism, the board, and find that private equity sponsors change the board structure so that they have control over the board post LBO. Muscarella and Vetsuypens (1990) and Leslie and Oyer (2009) document differences in equity incentives between LBO firms and public firms by focusing on reverse LBOs and a set of control firms. CEO compensation in non-LBO private firms has recently been studied by Cole and Mehran (2008) and Gao, Li, and Lemmon (2010). These papers compare CEO compensation in private and public firms, while we study changes in ex ante CEO contract design in the transition from a public to a private firm.⁴ Kole (1997) studies compensation contracts of a sample of public firms, and concludes that examining details of such contracts can uncover important new evidence on how incentives are provided. Finally, our paper is related to Kaplan and Strömberg (2003) who compare real-world venture capital contracts to those predicted by contracting theory.

The paper is structured as follows. Section 2 describes the construction of our data set and reports summary statistics. Section 3 compares the design of CEO contracts just prior to versus right after the arrival of a strong principal. Section 4 compares our results to contracting theories. Section 5 relates our findings to recent discussions of executive compensation reform. Section 6 concludes.

2. Data and Sample Construction

2.1 Data Sources

Availability of data is a significant challenge for any study of CEO contracts, particularly after a firm has gone private. Baker and Wruck's (1989) approach to this challenge is to analyze executive

³ See Palepu (1990) and Kaplan and Strömberg (2009) for reviews of research on leveraged buyouts.

⁴ Bengtsson and Hand (2010) study CEO pay in small venture capital sponsored private firms, which are very different from the large, mature firms we analyze.

compensation and equity incentive changes in the specific case of O.M. Scott & Sons' LBO, where data were collected through interviews. Denis (1994) uses a similar approach in the case of Safeway's LBO. Muscarella and Vetsuypens (1990) and Leslie and Oyer (2009) are able to study larger data sets of firms (reverse LBOs) because such firms have to disclose executive compensation arrangements for two years prior to the IPO.⁵ Still, Leslie and Oyer conclude that "[i]t would be ideal to obtain data on all managers' equity investments, option grants, bonus structures and firing/hiring of managers. [...] By its very nature, it is difficult to obtain information on the practices of private equity firms for a broad sample, let alone such confidential details as managerial incentives" (p. 6).

The approach we take in this paper to the data availability challenge is to hand-collect a new data set with unprecedented details on CEOs' compensation, perquisites, severance pay, equity incentives, and vesting conditions. We take advantage of the fact that some private equity sponsored private firms are required to (continue to) file with the Securities and Exchange Commission (SEC) post-LBO.⁶ We also take advantage of recent amendments to disclosure rules under the Securities Exchange Act of 1934. In 2006, the SEC adopted new regulation regarding executive compensation, which was intended to provide more details of the compensation of executives.⁷ For the private firms we study, we collect from SEC filings not only data on compensation, but also employment contracts, equity incentive plans, and equity rollover agreements which provide a detailed and complete picture of what the contracts between the principals and agents look like right after the strong principal enters the firm.⁸

⁵ In particular, Muscarella and Vetsuypens (1990) study 72 reverse LBOs in the U.S. during the early years of the private equity industry (1976-1987), while Leslie and Oyer (2009) study 144 reverse LBOs during 1996-2006. Both papers report improvements in operational efficiency and profitability related to the investments by the private equity sponsors.

⁶ Private firms may be required to file with the SEC because of two laws: the Securities Act of 1933, which requires a firm to file a registration statement and then ongoing statements if it has 300 or more investors in the security being offered; and the Exchange Act of 1934, which requires firms to file regular reports (e.g., 10-Ks) if they have 500 or more investors in a security class (be it common stock or debt) and at least \$10 million in assets. Cotter and Peck (2001) and Helwege and Packer (2008) use a similar data collection approach as ours.

⁷ Firms had to comply with the new rules if their fiscal year ended on or after December 15th, 2006.

⁸ Gillan, Hartzell, and Parrino (2009) study executive employment contracts in public firms, but because of their large sample, they cannot analyze these contracts in detail. They find that fewer than 50% of top executives have employment contracts, but that the probability of observing an employment contract is positively correlated with the degree of job uncertainty of the CEO. We find that in a situation in which a CEO has an extreme job uncertainty because he manages a high-debt firm with a strong principal, all the CEOs we study have employment contracts.

2.2 *Sample Selection Issues*

A clear shortcoming of our approach is a very small and non-random sample. We have data on CEO contracts for 20 LBOs of large public firms between 2005 and 2007. We cannot collect detailed data on contracts prior to the changes of disclosure rules effective in December 2006. In addition, the 2008 financial crisis resulted in a collapse of the high-yield debt market used by large private equity sponsors. As a result, it is not feasible to extend the sample significantly beyond the current number of CEO contracts. As we analyze a small sample, our comparisons in Section 3 focus on economic significance, and we will make no attempt to convince the reader of the statistical significance of the differences we report.⁹

Because we can only look at the period between 2005 and 2007, it is not possible for us to create a suitable control sample of publicly listed firms. As we look at changes in compensation contracts pre-versus post-LBO, a suitable control sample would consist of firms that underwent similar changes in capital structure as our sample firms, but chose to remain public, and not merely a sample of public firms with high leverage. Unfortunately, there is simply not enough activity in leveraged restructurings during this period to construct such a sample.

We also want to recognize several sample selection issues with respect to our sample. Most importantly, the requirement of public debt financing (to obtain SEC filings post-LBO) means that our sample consists of only the largest LBOs and the largest private equity sponsors (e.g., Blackstone, Carlyle, and Kohlberg, Kravis & Roberts). One may argue, on the other hand, that given our particular objective, this selection bias is not too disconcerting. While we may have selected sophisticated private equity sponsors that have been successful in the past, this may strengthen our results because we are more likely to have selected strong, value-maximizing principals.¹⁰ We also recognize that private equity

⁹ Rather quickly consistent patterns seem to emerge in our sample of CEO contracts, which suggests that, other than increasing statistical power, not much else would change if we had a larger sample.

¹⁰ There is no apparent performance bias in our data set in the sense that we do not study ex post successful private equity transactions. On the other hand, the large private equity sponsors that constitute the principals in our sample have been successful in the past, and there is evidence of persistence in performance in private equity (e.g., Kaplan and Schoar (2005)).

sponsors do not target random firms, but select those with turnaround potential. On the other hand, we argue that it is not reasonable to expect that the boards of firms we study would have changed CEO contracts at exactly the time of the sponsor's arrival and to exactly those that the sponsors design even if no strong principal had arrived in the firm. It seems much more reasonable to assume that the CEO contract redesign is caused by the bargaining between the strong principals and their agents, which should reduce concerns that selection bias explains our results.

2.3 *Summary Statistics*

Appendix A reports the private equity transactions included in our sample, the announcement dates, and the total value of these transactions. Panel A of Table 1 shows summary statistics on deal characteristics, including price per share, premium over the share price at the announcement date, total value, and multiples. The deal characteristics are from Bloomberg.

It is evident from the table that our sample consists of very large LBOs. The average (median) deal value is \$9 billion (\$6 billion). The largest transaction is the LBO of HCA Inc. with a deal value of \$32 billion. We find that the premium is on average 19% (median 18%). Guo, Hotchkiss, and Song (2009) find that the average premium, defined as percentage difference of price per share paid and stock price one month prior to the LBO, is 29% in their sample of large buyouts 1990-2006. Some of the difference may be driven by the fact that "club deals" have lower premiums (e.g., Officer, Ozbas, and Sensoy (2010)), and that 60 percent of our sample are club deals, i.e., they are financed by consortiums of private equity sponsors. Guo, Hotchkiss, and Song (2009) find that the average EBITDA multiple is 11.4 for their LBOs. In our sample, the average EBITDA multiple is also 11.4, and the median is 10.47.

In the majority of our sample transactions (60 percent), the CEO is retained after the LBO.¹¹ Interestingly, the dollar value of the shares the CEO is allowed to cash out exceeds the dollar value of the equity the CEO is required to buy in.¹² The dollar cash out is from form DEFM14A, the definitive proxy

¹¹ This result suggests that the CEO-firm match is not perceived by the strong principals to be the problem in a majority of the transactions, but suggests that the problem may be the CEO contracts and incentive schemes.

¹² These statistics are computed only for firms with the same CEO pre- and post-LBO.

statement relating to a merger or acquisition, required under Section 14(a) of the Securities Exchange Act of 1934.¹³ The dollar cash-out variable is skewed, because in some deals CEOs with very large stakes use the LBO to partially liquidate their stakes. For example, Joseph Neubauer of Aramark had equity valued at \$812 million prior to the LBO, and was required to buy in up to \$250 million. The median cash-out is \$38 million, while the median buy-in is \$12 million.

Panel B of Table 1 reports target firm characteristics from the last fiscal year prior to the LBO announcement date. Statistics are based on accounting data from Compustat. Our sample firms have, on average, \$5 billion in sales and 37,000 employees (median sales of \$2.5 billion and median number of employees of 14,000). They have low book leverage of 20%, about 11% of cash relative to total assets, and interest coverage above 16. Half are dividend payers in the year prior to the private equity transaction.

Panel A of Table 2 reports data on changes in corporate governance characteristics. Prior to the LBO, the average (median) director and officer ownership was 12.2% (6.1%). The average firm had an aggregate outside block ownership of approximately 20%, held by, on average, 2.8 investors.¹⁴ After the LBO, the “primary investors,” which are mainly the private equity sponsors, own on average 96% of the equity of the private firms.¹⁵ Four percent is on average owned by CEOs, executives, and other employees.¹⁶

CEOs can buy in at the LBO price or, if they were retained from the firm pre-LBO, roll over their stock and option holdings. In addition, each of the private firms has a management incentive plan, in

¹³ More precisely, the section “Interests of the Company's Directors and Executive Officers in the Merger” of form DEFM14A describes the payments made to directors and named executive officers in the event of a successful sale of the company. The payments include gains from the immediate vesting and the subsequent sale of stock and option grants, payments upon change of control, and extra bonuses paid for a successful completion of the merger.

¹⁴ We note that the firms in our sample do not have completely dispersed ownership pre-LBO. Some recent research has found that a blockholder in a public U.S. firm reduces pay for luck (e.g., Bertrand and Mullainathan (2000, 2001) and affects CEO pay (e.g., Cronqvist and Fahlenbrach (2009) and Becker, Cronqvist, and Fahlenbrach (2010)). The result that the average firm in our sample has a blockholder pre-LBO makes it even more interesting to analyze whether there is any additional effect on CEO contracts after the arrival of the strong principals we study.

¹⁵ More precisely, 100% of the common stock of the firm is held by a holding company. The consortium of private equity sponsors and management then hold shares of the holding company.

¹⁶ Baker and Wruck (1989) report that about 17 percent of the equity was owned by O.M. Scott & Sons' CEO, executives, and other employees immediately after the LBO. The difference may be attributable to the larger size of the firms in our sample.

which a significant amount of shares and options are set aside for CEOs, executives, and other employees. Because the table shows ownership right after the LBO, no such grants have vested and are thus not included in the table. For most sample firms we are able to identify the management incentive plans and the maximum number of shares under the plan. We find that the upper bound ranges between 6 and 20 percent of outstanding shares, on a fully diluted basis.

Panel B of Table 2 reports changes in board characteristics. The average board in our sample decreases by 1.3 directors to 8.3 directors. Of those, 5.5 are representatives of the private equity sponsors, 1.2 are employees, and 1.4 are outside directors.¹⁷ Compared to the board composition prior to the buyout, most of the outside directors are replaced by directors representing the sponsors. Our results are consistent with the evidence by Cotter and Peck (2001) for their sample of U.S. buyouts in the 1980s and Cornelli and Karakas's (2008) evidence for the U.K. Gertner and Kaplan (1996) and Katz (2009) examine LBO boards around a reverse LBO and find that private equity sponsors have a large representation on the board, although their numbers are somewhat lower than ours, suggesting that the sponsor's control just after the LBO is stronger than at the time the company goes public again. These governance changes will likely result in simpler processes for obtaining investor approval of management contracts and equity grants, with processes driven by the principal as opposed to boards reacting to CEOs' proposals.

To conclude, we find significant changes in corporate governance characteristics around the private equity transactions we study. In particular, the firms in our sample have strong principals after the LBO, who have enough voting and board control to redesign and bargain new CEO contracts if they find it optimal to do so.

3. The Redesign of CEO Compensation and Employment Contracts

In this section, we compare the design of CEO contracts just prior to versus right after the private equity transactions in our sample. Our objective is to examine whether the strong principals redesign CEO contracts, and if they do, which specific contractual characteristics they change. We first study base

¹⁷ Not surprisingly, we find that board size increases with the number of private equity sponsors in the consortium (untabulated).

pay, bonus, and perquisites, then severance and separation pay, and finally equity incentives.¹⁸ Because of the small sample size, we focus on the economic significance of changes of CEO contracts.

3.1 Base Salary, Bonus, and Perquisites

Table 3 reports the average and median CEO compensation pre-LBO in columns 1 and 2, while columns 3 and 4 characterize post-LBO contracts. Columns 5 and 6 report the percentage of firms with increases or decreases, respectively, in the compensation variables, if applicable.

We first examine CEO salary and target bonus data. We find that prior to an LBO, the average (median) base salary is \$798,000 (\$833,000). After the arrival of a private equity sponsor, the average (median) salary increases to \$946,000 (\$1,000,000), i.e., a 20 percent increase for the median firm. The empirical evidence on increases is rather consistent: The CEO's salary increases in 63 percent of the sample firms. This average increase in base salary may reflect compensation for more required effort by a CEO post-LBO, for increased risk for the CEO, or for the CEO being a more valuable resource to the private equity sponsor. We do not have much existing evidence to which we may benchmark our results. An exception is Baker and Wruck (1989) who report an increase in O.M. Scott & Sons Company's CEO's base salary of 42 percent. Assuming that their reported increase is representative of the 1980s LBO wave, it appears that the arrival of an LBO sponsor in the firm still increases CEO salaries, but the percentage salary increase has, on average, halved since then.

Turning to bonuses, we find that target bonuses also increase after a private equity transaction. The average (median) bonus target prior to the LBO is \$1,092,000 (\$975,000), but it increases to \$1,272,000 (\$1,167,000) after the LBO, also corresponding to a 20 percent increase for the median firm. The CEO's target bonus increases in 67 percent of our sample firms.

Importantly, we also find that, after the arrival of a strong principal, bonus criteria shift away from earnings per share (EPS) to EBITDA. That is, CEO contracts designed by strong principals shift from earnings-based measures, which apparently analysts and Wall Street care about, to measures which

¹⁸ See Murphy (1999) for a review of research on executive compensation.

assess the capacity of firms to service their debt, which the value-maximizing principals of our sample appear to care about. Also, it has been argued that EBITDA is more difficult to manipulate because it removes discretion related to the treatment of depreciation, amortization, and tax recognition. The shift in the use of bonus measures is significant: only 10 percent of CEOs pre-LBO are benchmarked in terms of their bonus against EBITDA, compared to a vast majority (80 percent) post-LBO.

The table also reports changes in perquisites. At first sight, the average dollar perquisites appear to quadruple after an LBO. Closer examination reveals, however, that this is entirely driven by the relocation packages of a small number of new CEOs. The median dollar value of perquisites stays almost unchanged at approximately \$18,000 per year. Consistent with a non-change in perks after LBOs, we find increases and decreases, respectively, in perks for about a third of the CEOs each. Further analysis reveals that there does not seem to be any significant changes in the mix of perquisites in the new CEO contract (untabulated).

Yermack (2006b) analyzes one specific perk, personal use of company aircraft, and finds that such use is a private benefit that cannot be explained by anything but golf club memberships far away from the corporate headquarters. Table 3 shows that about 40 percent of firms allow personal aircraft use both pre- and post-LBO, so the incidence of personal aircraft use does not appear to change significantly with the arrival of a strong principal in the firm.¹⁹

To conclude, data are inconsistent with strong principals coming in and slashing excessive CEO compensation and blatant perks. The CEO's base salary and target bonus increase by 20 percent on average, and perquisites remain more or less unchanged. Instead, the most significant change is with respect to the criteria for bonus payments: CEO contracts are redesigned away from earnings-based measures and qualitative, non-financial measures to EBITDA; prior to the LBO only 10 percent base bonus on EBITDA compared to 80 percent after the arrival of a strong principal.

¹⁹ Our results are consistent with the evidence in Edgerton (2011). He studies company aircraft usage prior to and after LBOs, and while he finds that private equity transactions may decrease extreme pre-LBO usage, he finds a zero effect on average. It is also important to recognize that our analysis does not consider substitution from company aircraft use prior to an LBO to CEO usage of the sponsor's (or its partners') aircraft after an LBO.

3.2 *Severance and Separation Pay*

Table 4 reports data on contractual arrangements upon termination without cause (Panel A) and change of control (Panel B).²⁰ Columns 1 and 2 show the average and median values for separation contracts pre-LBO, while columns 3 and 4 characterize post-LBO contracts.

We find in Panel A that the median contractual severance cash pay prior to an LBO is 2X base salary plus 2X past annual bonus. Two years of total cash pay correspond to the median separation pay agreement in large U.S. firms (e.g., Rusticus (2006)). We also find that the median contract with respect to cash pay in the event of a dismissal is not redesigned after the LBO.

Turning to unvested stock options and restricted shares, we find large differences pre- and post-LBO. The vesting conditions become much more restrictive for a terminated CEO. After the arrival of a strong principal, unvested options (restricted shares) are cancelled in the event of a CEO termination in 61 percent (54 percent) of the firms, compared to only 29 percent (29 percent) prior to the private equity transaction.²¹ The principals also design CEO contracts to impose costs on terminated CEOs, even if some equity vests (or has vested previously). In 71 percent of the firms, CEOs enter into contracts that severely restrict the parties to which they can resell shares if they are terminated. In particular, the private equity sponsors have the right of first refusal to buy back the shares at fair market value assessed on a quarterly basis by an independent accounting firm. If the sponsors do not exercise this option, a dismissed CEO is stuck with the shares until a liquidity event for the principal, because he is typically also restricted from selling shares to outsiders.

We find in Panel B that the median contractual payments upon change of control prior to an LBO are 3X base salary plus 3X past annual bonus. Fich, Tran, and Walkling (2011) report average payments upon change of control of 2.95X total cash pay for a sample of large U.S. public firms. We find that the median contract is redesigned after the LBO: The median is reduced to 2X base salary plus 2X past

²⁰ Terminations for cause are in reality infrequent events so we decided not to examine them.

²¹ One caveat is that our study focuses on ex ante contracts rather than ex post payments upon CEO termination. Yermack (2006a) finds that a lot of severance pay is awarded on a discretionary basis by the board. However, contracts provide the minimum separation pay so as long as private equity sponsors do not pay more on a discretionary basis than boards of publicly listed firms, our conclusions are still relevant.

annual bonus.²² An explanation for this change may be that because of the sponsor's strong control of the board post-LBO there is much less of a requirement to compensate the CEO for not resisting a change of control event, compared to a public firm.

The overall conclusion is that data are inconsistent with strong principals dramatically reducing excessive CEO severance cash pay. Instead, the most significant change is with respect to the equity held by a terminated executive: CEO contracts are redesigned so that unvested options and restricted stock are forfeited if the CEO is dismissed; prior to the LBO only 29 percent of options were cancelled compared to 61 percent after the arrival of a strong principal. The principals also contractually restrict the resale market for vested shares for terminated executives by a right of first refusal.

3.3 *Equity Incentives*

Tables 5 and 6 report CEO equity incentives pre-LBO and post-LBO, respectively. Columns 1 and 2 show averages and medians. Equity incentives for the CEOs in our sample come from options, restricted stock, and unrestricted shares.

We find in Table 5 that the average (median) CEO in our sample prior to the LBO receives his equity incentives in the form of a mix: 67 (76) percent options, 29 (14) percent restricted stock, and 5 (0) percent unrestricted stock. These percentages are computed by dividing the number of options, restricted shares, and unrestricted shares, respectively, by total ownership, on a fully diluted basis, i.e., assuming all equity vests and expires in the money. We also show the intrinsic values of the options to provide an approximate dollar value of the outstanding grants. The average (median) dollar value of options, exercisable and unexercisable, is \$12,214,000 (\$5,896,000). At first sight, the average dollar value of unrestricted shares is extremely large at \$123 million, but entirely driven by two CEOs: Jerry Perenchio of Univision sells his stake for about \$1.3 billion in the LBO, and the stake of Joseph Neubauer of

²² Note that the change of control compensation discussed in this subsection is not conditional on achieving prespecified multiples or IRRs for the principal. That is, this is contractual compensation to the CEO whether or not the change of control event is a success from the private equity sponsor's perspective.

Aramark was worth \$812 million at the time of the buyout. The median dollar value for unrestricted shares owned outright is \$9.2 million pre-LBO.

We find in Table 6 that the mix is redesigned after the arrival of a strong principal. Most importantly, for the average CEO in our sample, the percentage of options is reduced, but the percentage of restricted stock increases. The strong principals appear to redesign contracts away from options to stock. They may be concerned that options provide no downside risk to the executive, potentially creating incentives for excessive risk-taking.²³ Restricted stock grants, instead of option grants, may be a means for the principals to reduce such concerns.

Another change is that the principals commonly use a large, up-front grant of options and restricted stock, resulting in more leverage in the incentive scheme compared to a series of annual grants which is common in public firms.

Turning to the details of the equity mix, it may be instructive to first provide two specific examples of CEO equity incentives plans. Appendix B reports plan details for HCA Inc. and Alltel Corp., which are representative of our sample of firms. We find that most private equity sponsored firms provide their CEOs with a mix of performance- and time-vesting options or restricted shares. In HCA, the CEO was granted three tranches of options: 1/3 time vest, 1/3 vest if the firm achieves certain annual EBITDA performance targets, and 1/3 vest if the sponsors achieve a certain multiple of the price paid in the LBO (50 percent of the tranche vests at 2X; 50 percent vests at 2.5X). In Alltel, 69 percent of the CEO's options time-vest like standard option grants in public firms, and 31 percent performance-vest, with the threshold being 1.5X or 2X the price paid in the LBO.

Returning to the data in Table 6, we find that the vast majority (90 percent) of CEO contracts involve performance-vesting post-LBO. The most common condition for the vesting is the achievement

²³ Some strong principals in public firms, e.g., Mr. Buffet of Berkshire Hathaway, have repeatedly raised such concerns with respect to options. Also, Denis, Hanouna, and Sarin (2006) report that stock options in public firms appear to increase the incentive to engage in earnings management and even fraud. Dittmann and Maug (2007) calibrate a principal-agent model to a comprehensive sample of U.S. CEOs and find that the optimal contract favors stock over options for most of them. Specifically, a contract with stock reduces compensation costs while providing the same incentives to CEOs as contracts with options.

of certain returns for the private equity sponsors, measured either as multiples of the price paid in the LBO, or IRRs.²⁴ For the average CEO in our sample, the details of the equity mix after the LBO are: 22 (7) percent performance-vesting options (restricted stock), 5 percent premium options, 25 (10) percent time-vesting options (restricted stock), 5 percent options granted conditional on minimum buy-in,²⁵ and the rest is unrestricted shares. That is, even sophisticated principals rely to a relatively large extent on time-vesting equity.

To conclude, CEO contracts are redesigned with respect to the equity incentive mix. The most significant changes are that the strong principals substitute options with restricted stock, and that 90 percent of sample firms use performance vesting for some, but not all, equity grants post-LBO. That is, unless the CEO produces certain multiples or IRRs for the principal, performance-vesting equity will be forfeited. The redesigned CEO contracts appear to create much stronger incentives for CEOs in the presence of a private equity sponsor as a principal in the firm.

4. Comparison with Contracting Theories

In this section, we compare the real-world contracts in our sample to those predicted by principal-agent, perquisite, and severance pay theories.

4.1 Classical Principal-Agent Theories

In principal-agent models, e.g., Holmström (1979), the setup is that a principal wants to design a contract with an agent to maximize value. The problem is that the agent is effort-averse and effort is unobservable to the principal. As a result, the optimal contract involves compensation contingent on a set of signals which are observable and correlated with the agent's effort.²⁶

²⁴ Technically, these options are of the accelerated vesting type, in that if the performance criteria are not met, they will time-vest. Bettis et al. (2010) report similar results for performance vesting options in a sample of public firms, and explain the eventual time-vesting of these options with a more favorable accounting treatment.

²⁵ Some private equity sponsors provide an incentive for CEOs to reinvest a portion of what they cashed out by providing matching stock option grants.

²⁶ Kaplan and Strömberg (2003) specify several predictions from classical principal-agent models and how they may be related to real-world contracts. For an extensive review of contracting theories relevant for our discussion, we refer to Gibbons (1998) and Prendergast (1999).

Informativeness Principle. The “informativeness principle” implies that any signal that, at the margin, reveals information about an agent’s effort should be included in the optimal contract (e.g., Holmström (1979), Harris and Raviv (1979), and Innes (1990)). We find that strong principals put heavy emphasis on relatively few performance measures, compared to what is commonly observed in public firms. In particular, the principals use separate measures for year-to-year performance (e.g., EBITDA) and longer-term performance (e.g., IRRs or multiples).

As Prendergast (1999) points out: “The most common example of the use of [the informativeness principle] has been application of Relative Performance Evaluation, where the performance of one agent is compared to another when choosing compensation” (p. 14). From a theoretical perspective, perhaps the most surprising characteristic of the contracts in our sample is the seemingly complete absence of attempts by the strong principals to benchmark a CEO’s performance relative to the performance of CEOs/firms in the same industry. That is, the principals we study do not appear to filter out common risks from compensation contracts.²⁷

Precision of Signals. One explanation for not using a large number of signals in the contracts is that the relevance of a particular signal is inversely related to its noise, so imprecise signals should receive a relatively lower weight in the contract. We find that the strong principals appear to contract on more precise signals than what is commonly observed in public firms. Specifically, after the arrival of a private equity sponsor in the firm, the vast majority of contracts have conditions related to the achievement of cash flow and EBITDA, not EPS or qualitative, non-financial measures such as “employee satisfaction.” Importantly, the principals appear to prefer not to contract upon signals that can be easily manipulated by the agents (e.g., earnings management and accruals changing EPS). Over the longer term, value creation can be measured precisely (Was there a liquidity event? What was the multiple or IRR to the principal?)

²⁷ We recognize that it is still possible that there is significant subjective relative performance evaluation in that the principal dismisses a CEO who performs much worse than other CEOs/firms in the same industry. However, it is not completely clear from a theoretical perspective why relative performance evaluation should be subjective, rather than based on objective measures. For research on relative performance evaluation for CEOs, we refer to Gibbons and Murphy (1990). Meulbroek (2001) also points to some of the complexities of designing options that optimally reward relative CEO performance, and states that only one public firm, Level 3 Communications, used such equity incentives in the early 2000s.

and the contracts do, as predicted by classical principal agent theories, contract upon such signals. Multiples or IRRs cannot be measured without significant noise year to year because there is no public market for the firm's equity, so accounting-based signals are used for short-term compensation.²⁸

Screening and Selection Effects. Another implication of classical principal-agent models is that contracts result in selection effects. Principals may design contracts not only to induce an agent's effort, but also to affect which agents will select the proposed contract. If agents differ in their abilities (e.g., Rosen (1981)), more performance sensitive contracts will be preferred by better agents (e.g., Lazear (1986)). We find that the strong principals appear to design CEO contracts consistent with screening models. Unlike in public firms where the required CEO equity ownership is often insignificant, new CEOs in our sample firms are required to buy in at the LBO, implying a separating equilibrium with endogenous self-selection of better CEOs. More surprising is that the average cash-out is larger than the buy-in for those CEOs who are retained in the LBO. The cash-out may be compensation to the CEO for not resisting the buyout using poison pills or other defense mechanisms that would increase the cost of the LBO to the private equity sponsor.

Sensitivity of Compensation to Signals. Classical principal-agent theories imply that contracts should maximize the sensitivity of the agent's compensation to the signals. We find that the strong principals design contracts such that the CEO's compensation is sensitive to the signal. Still, they do not rely exclusively on bonuses and performance-vesting equity because CEOs have a base salary and a significant percentage of the equity does not performance vest. Theory predicts several reasons for muted incentives, i.e., a reduction in the sensitivity of pay to the signals of the agent's effort. One is simply that the agent is risk averse, which reduces the optimal sensitivity.

Multi-Tasking and Subjective Performance Evaluation. Another theoretical reason for muted equity incentives is what is commonly referred to as multi-tasking in contracting theory. In multi-tasking

²⁸ We find less conditioning on qualitative non-financial signals compared to VCs who may condition contracts with agents on, e.g., a product launch (e.g., Kaplan and Strömberg (2003)), presumably because cash flow and value may be more precisely measured in an LBO setting.

models, an effort-averse agent will exert effort only on the tasks whose signals pay off the most.²⁹ Clearly, it involves multiple tasks to turn around an industrial firm post-LBO. More subjective performance evaluation then becomes the equilibrium contract (e.g., Holmström and Milgrom (1991) and Baker (1992)). Time-vesting of equity incentives may be interpreted as subjective performance evaluation by the principal, because a portion of the agent's pay is contingent on the principal's continued decision not to dismiss the agent.³⁰ Interestingly, the sophisticated and financially savvy principals we study appear to rely on subjective performance evaluation to a significant extent, though arguably less so than in public firms. That is, even strong, value-maximizing principals who use performance-vesting based on, e.g., IRRs, find it optimal to simultaneously use some time-vesting. This result appears consistent with Baker, Gibbons, and Murphy's (1994) model which implies that, in an optimal contract, objective measures and subjective performance evaluation are complements rather than substitutes.³¹

Contracting as Complement or Substitute? In addition to contracting and screening, principals may also use monitoring to reduce principal-agent problems. Because the strong principals we study own 95 percent of the firm's equity, control the board, use preapproved 100-day management plans, etc., there appears to be much more monitoring after a private equity transaction. Still, we find that the principals design contracts such that the CEO's pay is increasingly sensitive to performance. That is, our data imply that contracting is a complement to, rather than a substitute for, principal monitoring of the agent. This is consistent with Kaplan and Strömberg's (2003) evidence that equity incentives and VC control are largely complementary, and also the evidence in Bettis et al. (2010) that public firms that are more likely to grant

²⁹ Brown (1990) provides examples of the multi-tasking problem in contracting. For example, former NFL quarterback Ken O'Brien threw too many interceptions in the 1980s and was therefore provided a contract that penalized him if he threw the ball to the opposing team. While the contract did reduce the interceptions he threw, it was largely because he was reluctant to throw the ball at all, even when it was optimal to do so. That is, the problem is that the agent changed his behavior vis-à-vis the contract in a way that is privately optimal to the agent but not optimal to the principal.

³⁰ Of course, time-vesting only constitutes subjective performance evaluation if the strong principal indeed monitors, and if the agent has to forfeit the equity if he is terminated.

³¹ It is easy to find other examples in corporate finance where objective measures are complemented by subjective performance evaluation. For example, investment bankers involved in corporate finance transactions may theoretically be evaluated entirely based on objective measures such as the fees they produce. However, bonuses at most large investment banks rely to a significant extent on subjective evaluation of, e.g., the quality of the deals, the bankers' contributions to customer satisfaction, coaching of younger associates, and marketing (e.g., Eccles and Crane (1988)).

performance-vesting options to their CEOs have stronger governance. It appears that the causality goes from strong principals having majority ownership and board control to the redesign of CEO contracts.

4.2 *Perquisite Theories*

There are two main theoretical perspectives regarding CEO perquisites. One is “perks as private benefits,” i.e., perquisites are the result of principal-agent problems and are valuable only to the CEO, not the firm’s shareholders. Jensen (1986) predicts that excessive perquisites are most likely in older, mature firms with free cash flow problems, i.e., the firms that LBO sponsors commonly target. If perks are a private benefit, then firms with better governance, e.g., because of the presence of a value-maximizing principal in the firm, are predicted to provide significantly fewer CEO perks (e.g., Jensen and Meckling (1976) and Grossman and Hart (1980)). Another perspective is “perks as productivity.” Perquisites may improve the executive’s, and in the end the firm’s, productivity. For example, the CEO may not internalize the value to the firm from the perk, perquisites may be cost effective, and there may be scale economies in providing a perk. It is possible that in the absence of a strong principal, there may be underprovision of perquisites, or provision of an inefficient mix.

Perhaps surprisingly, we find that the strong principals do not significantly redesign CEO contracts regarding perquisites (not even related to CEOs’ personal use of corporate aircraft or tax gross-ups, two perks with particularly bad reputation in media), nor do they redesign the perk mix. That is, data are inconsistent with private equity sponsors cancelling excessive and blatant CEO perks. The overall conclusion is that the market, at least on average, arrives at an efficient CEO perk contract and mix even prior to the arrival of a strong principal in the firm. In this respect, our results are consistent with the conclusion by Rajan and Wulf (2006): “We do not see a systematic pattern that is fully consistent with an [...] agency explanation of perks” (p. 31).

4.3 *Severance Pay Theories*

Models of severance pay include Almazan and Suarez (2003) and Inderst and Mueller (2010). The models analyze moral hazard or governance problems that arise when agents change their actions because of the risk of being terminated by the principal. A severance pay contract is the equilibrium contract used to insure an agent ex ante against dismissal (see also Yermack's (2006a) discussion of what he refers to as "bonding").

One of the predictions of Almazan and Suarez's (2003) model is that CEO severance contracts are expected to be more favorable to a CEO when governance is more lax and CEOs may entrench themselves. Such contracts incentivize a CEO to step down when it is optimal to do so. We find that the strong principals redesign CEO contracts consistent with such a model. Specifically, the contractual provisions for termination without cause in a public firm are significantly more favorable than those designed by a private equity sponsor (not because of lower severance pay, but because CEO contracts are redesigned so that unvested equity is forfeited if the CEO is terminated). In Inderst and Mueller's (2010) model, the CEO privately observes an interim signal about his match quality with the firm and about the expected value of the firm. Severance pay incentivizes bad CEOs to resign, but also makes it costly to induce CEO effort. A model prediction is that an increase in equity incentives is accompanied by a simultaneous increase in severance pay, but our data do not appear consistent with such a prediction.

5. Relation to Discussion of Executive Compensation Reform

Several critics have recently proposed reforming executive compensation in U.S. public firms (e.g., Bebchuk and Fried (2003, 2004)). The argument is that the entity that governs CEO pay in U.S. public firms, i.e., the board and compensation committee, cannot be expected to bargain at arm's length with CEOs because the executives have significant discretion over the appointment of the firm's directors (e.g., Shivdasani and Yermack (1999)). As a result, executive compensation is not aligned with shareholder interests, and CEO contracts often appear to allow rent extraction (e.g., Bertrand and

Mullainathan (2000, 2001), Heron and Lie (2007), Morse, Nanda, and Seru (2010), and Bebchuk, Grinstein, and Peyer (2010)).³²

In response to the corporate scandals of 2001-2002, the NYSE and Nasdaq required increased director independence for firms trading on those exchanges. Guthrie, Sokolowsky, and Wan (2010) compare CEO pay changes in firms that were not compliant with the new rules and those that were compliant, but find no significant differences, and they also report that compensation committee independence increases CEO pay. They conclude that their findings cast doubt on the ability of boards of U.S. public firms to constrain executive compensation.

In this paper, we have examined what CEO contracts look like when the CEO does not control the firm's pay-setting process, i.e., there is arm's length bargaining between a strong, value-maximizing principal and his agent. A natural question is: Do the CEO contracts we study look like those that would be the result of recently proposed executive compensation reform in the U.S.? The short answer appears to be no.

5.1 *Pay Without Performance and "Pay for Luck"*

Critics argue that pay without performance comes from two sources. One is excessive salary payments, which are not sensitive to the firm's performance. There is also pay for luck which comes from, e.g., options that compensate CEOs for increases in the firm's stock price even if those increases are due entirely to factors beyond the CEO's control, e.g., industry turnarounds.

We do not find that strong value-maximizing principals redesign CEO contracts specifically to address pay without performance. First, they do not come in and reduce excessive and performance-insensitive CEO salaries. Second, there is pay for luck also in contracts designed by strong principals. In particular, we do not find any industry benchmarking of equity incentives in CEO contracts, although the principals we study may be informed about whether the success of an investment is a result of the agent's

³² Murphy and Sandino (2010) analyze conflicts of interest involving "independent" compensation consultants commonly used by boards of public firm.

effort versus just an industry turnaround. That is, even the CEO contracts designed by the strong principals are subject to pay for luck.³³

5.2 *Uniform Use of At-the-Money Options*

Bebchuk and Fried (2004) show that 95 percent of options to executives in public U.S. firms are granted at-the-money, and they wonder why not more CEOs receive premium options, where the strike price is above the current stock price. We find that premium options are not a common feature of CEO contracts post LBO.

While private equity sponsors commonly grant equity with performance-vesting conditions, contracts also involve a significant portion of time-vesting equity, i.e., more muted equity incentives. It is important to realize that time-vesting equity, if coupled with appropriate governance by a strong principal so that the unvested equity is forfeited by the CEO if he is dismissed, may serve as an incentive mechanism. The incentive does not come from the achievement of a particular IRR or multiple, but from subjective performance evaluation. Time-vesting can be interpreted as subjective performance evaluation, because a portion of the agent's compensation is contingent on the board's decision not to terminate the agent.

5.3 *Unrestricted Freedom to Unwind Equity Incentives*

Public firms take surprisingly few steps to restrict the unwinding of incentives provided by options and restricted stock. For example, firms commonly grant stock options that time-vest linearly over four years, and do not have restrictions on the resale of shares resulting from exercise, except for a minimum stock ownership threshold for executives.³⁴ Indeed, Ofek and Yermack (2000) find evidence that executives manage their holdings, selling shares after new equity is granted.

By contrast, the principals we study contractually restrict the resale market for vested shares for executives by a right of first refusal, i.e., the principal has the right, but not the obligation, to buy back the

³³ Bertrand and Mullainathan (2001) and Oyer (2004) note that some pay for luck may be optimal. For example, the value of a CEO's human capital may raise or fall with industry performance. Alternatively, principals may design CEO contracts in order to respond to shocks to an industry.

³⁴ Ownership requirements are commonly three to five times base salary (e.g., Core and Larcker (2002)).

equity at fair market value from the agent. In addition, no third party sales are typically allowed, and no public market exists. This makes it virtually impossible for a CEO to unwind equity incentives. The CEO will only be able to unwind his equity conditional on a liquidity event for the principal, which creates strong ex ante incentives. These findings should fuel further discussions about restrictions on CEOs' freedom to unwind equity incentives in public firms.

5.4 *Another Strong Principal: Executive Compensation in TARP Firms*

In 2009, the U.S. Treasury Department issued standards for regulating executive compensation in firms receiving government assistance through the Troubled Asset Relief Program (TARP). Core and Guay (2010) review some of these standards. Among them are that i) salaries above \$500,000 should be paid as vested stock, ii) bonuses should be restricted to 1/3 of total compensation and should be paid in restricted stock, iii) clawbacks are imposed on bonuses so that they may be recovered if they have been earned based on manipulated performance measures, iv) perquisites are restricted and tax gross-ups are prohibited, and v) severance and change in control payments are prohibited.

Interestingly, we find that few of the CEO contract designs used by the U.S. government, as another strong principal, correlate with how private equity sponsors design CEO contracts. In our sample, salary and bonuses are not reduced, and perquisite consumption and tax gross-ups remain unchanged. Nor do private equity firms use bonus clawbacks, though they have effective implicit clawbacks, in the sense that contracts severely restrict the resale of stock if the CEO is terminated. Executives also continue to receive severance and change in control payments.

The CEO contract design choices of the U.S. government look very different from those of sophisticated private equity sponsors. On the other hand, the TARP compensation standards regulate pay in firms in which the U.S. government not only has significant control, but also has written a put option as a lender of last resort. Thus, some of these standards may have been designed to protect all stakeholders, and not align the incentives of CEOs and shareholders. Having said this, Mr. Feinberg, the Special Master for TARP Executive Compensation, i.e., "pay czar," has repeatedly encouraged public firms to

look at the standards. Regulators and proponents of executive compensation reform should be aware that the CEO contract designed by the U.S. government as a principal is very different from the market-based contracts designed by the strong, value-maximizing principals we study.

6. Conclusion

The design of CEO employment contracts has recently involved intense debate among academics as well as regulators. One potential problem with CEO contract design in public firms in the U.S. is the absence of a strong principal. In this paper, we contribute with a new perspective on executive compensation research by carrying out a detailed analysis of CEO contracts that are the equilibrium outcome of market-based arm's length bargaining between what are arguably the most sophisticated, value maximizing principals in U.S. capital markets, and their CEOs as agents.

We find that these principals redesign many, but not all, contract characteristics. For example, there is no evidence that private equity sponsors reduce excessive salary, bonus, and perquisites, but they redesign contracts away from earnings-based and non-financial measures. They do not change the dollar value of CEO severance pay, but they redesign contracts so unvested equity is forfeited by terminated CEOs, and they restrict the resale market for the equity. CEO contracts are also redesigned so that about 50% of equity grants performance-vest: if the agent does not produce prespecified multiples or IRRs, the equity is forfeited. We also find that even sophisticated principals do not use premium options, and do not condition vesting on relative industry performance.

When comparing the real-world CEO contracts in our sample to those predicted by contracting theories, we find that several principal-agent, perquisite, and severance pay theories do rather well in describing the contract design, though some contract characteristics do not square well with currently existing contracting theories. Finally, we analyze whether the CEO contracts look like those that we expect would be the result of recently proposed executive compensation reform in the U.S., but we conclude that many elements are different.

Our results raise several questions for future research. For example, do the incentive schemes change beyond the CEO and other top executives of the firm? Anecdotal evidence suggests that only a very small set of executives receive equity incentives by private equity sponsors. The sponsors generally give the executives discretion to determine incentive schemes for lower ranked executives in the firm, but they are also responsible for the costs. The question is whether this changes rank-and-file compensation, selection, and dismissal policies. Also, what does the dynamic evolution of CEO contract design look like in the U.S. private equity industry? What did the CEO contracts look like in the early LBO wave in the 1980s, which characteristics (if any) have changed after that, and what explains such dynamic changes of CEO contracts?

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Appendix A: Sample of Private Equity Transactions

Firm	Announcement Date	Total Value (\$ millions)
HCA Inc	07/24/2006	32,193.46
First Data Corp	04/02/2007	27,497.13
Alltel Corp	05/21/2007	27,149.00
Freescall Semiconductor Inc	09/15/2006	16,222.22
Univision Communications Inc	06/27/2006	12,605.50
Biomet Inc	12/18/2006	11,426.96
SunGard Data Systems Inc	03/28/2005	10,591.52
ARAMARK Corp	05/01/2006	7,998.57
Toys R US Inc	03/17/2005	7,544.39
Dollar General Corp	03/12/2007	7,321.03
Neiman Marcus Group Inc	05/02/2005	5,044.34
West Corporation	05/31/2006	3,713.71
Education Management Corp	03/06/2006	3,123.64
Aleris International Inc	08/08/2006	2,301.62
United Surgical Partners	01/08/2007	1,781.41
HealthMarkets Inc	09/15/2005	1,712.55
Yankee Candle Co Inc	10/25/2006	1,640.08
Linens 'n Things Inc	11/08/2005	1,274.82
SS&C Technologies Inc	07/28/2005	800.54
Metals USA Inc	05/18/2005	710.32

Appendix B: Examples of Equity Incentive Plans

HCA Inc.:

On November 17, 2006, the Board of Directors approved and adopted the 2006 Stock Incentive Plan for Key Employees of HCA Inc. and its Affiliates (the “2006 Plan”). The purpose of the 2006 Plan is to promote our long term financial interests and growth by attracting and retaining management and other personnel and key service providers with the training, experience and ability to enable them to make a substantial contribution to the success of our business; to motivate management personnel by means of growth-related incentives to achieve long range goals; and to further the alignment of interests of participants with those of our shareholders through opportunities for increased stock or stock-based ownership in the Company.

In January 2007, the Committee approved grants to Messrs. Bovender, Bracken, Johnson, Hazen and Rutledge of options to purchase 399,604 shares, 349,654 shares, 249,753 shares, 159,841 shares and 139,861 shares, respectively, of our common stock. The options are divided so that 1/3 are time vested options, 1/3 are EBITDA-based performance vested options and 1/3 are performance options that vest based on investment return to the Sponsors, each as described below.

The time vested options vest and become exercisable in equal increments of 20% on each of the first five anniversaries of the date of grant. The time vested options have a strike price equivalent to fair market value on the date of grant (as determined reasonably and in good faith by the Board of Directors after consultation with the Chief Executive Officer).

The EBITDA-based performance vested options are eligible to vest and become exercisable in equal increments of 20% at the end of fiscal years 2007, 2008, 2009, 2010 and 2011, but will vest on those dates only if we achieve certain annual EBITDA performance targets, as determined in good faith by the Board (in consultation with the CEO). The EBITDA-based performance vested options also vest and become exercisable on a “catch up” basis, if at the end of fiscal years 2008, 2009, 2010 or 2011, the cumulative total EBITDA earned in all prior completed fiscal years or the 2012 fiscal year exceeds the cumulative total of all EBITDA targets in effect for such years. Similar to 2006 performance-based awards, we do not intend to publicly disclose the specific EBITDA performance targets for these options. However, we intend to set these targets at levels designed to be generally consistent with the level of difficulty of achievement associated with prior year performance-based awards.

The options that vest based on investment return to the Sponsors are eligible to vest and become exercisable with respect to 10% of the common stock subject to such options on each of the first five anniversaries of the closing date of the Merger if the Investor Return (as defined below) is at least equal to two times the price paid to shareholders in the Merger (or \$102.00), and with respect to an additional 10% on each of the first five anniversaries of the closing date if the Investor Return is at least equal to two-and-a-half times the price paid to shareholders in the Merger (or \$127.50). “Investor Return” means, on any of the first five anniversaries of the closing date of the Merger, or any date thereafter, all cash proceeds actually received by affiliates of the Sponsors after the closing date in respect of their common stock, including the receipt of any cash dividends or other cash distributions (but including the fair market value of any distribution of common stock by the Sponsors to their limited partners), determined on a fully diluted, per share basis. The Sponsor investment return options also may become vested and exercisable on a “catch up” basis if the relevant Investor Return is achieved at any time occurring prior to the expiration of such options.

The combination of time, performance and investor return based vesting of these awards is designed to compensate executives for long term commitment to the Company, while motivating sustained increases

in our financial performance and helping ensure the Sponsors have received an appropriate return on their invested capital.

Alltel Corporation:

Upon closing of the Merger, the post-Merger Board of Directors replaced Alltel's existing equity incentive plans with the 2007 Stock Option Plan. This plan provides for the award of stock options with respect to up to 6.5% of our stock on a fully diluted basis. Following the Merger and the approval of the 2007 Stock Option Plan, Alltel granted time-based and performance-based options to certain executive officers, including the Name Executive Officers, other than Mr. Beebe. Approximately 69% of the equity awards granted to each executive vest based on employment continually through the vesting period by the optionee, and approximately 31% vest through the attainment of company-based performance goals. The time-based options vest over a 5-year period (vesting 20% on each anniversary of the grant date) and are intended to enable greater leverage in retaining seasoned executives critical to the future success of the Company. The performance-based options seek to align the efforts and interests of the executives with those of the stockholders by rewarding executives if the value of the company measured by investment returns achieved by stockholders increases by certain threshold amounts. The event in which such a return is achieved occurs when control is transferred to new owners. By requiring that options be held until such a transaction occurs, the options also encourage retention of critical executives until stockholders are able to realize these returns. Each performance-based option vests and becomes exercisable (i) upon the Sponsors attaining a multiple of their equity investment calculated as cash or liquid securities received, divided by the purchase price and (ii) subject to the optionee's employment on the date the performance condition is met. Of the Performance Options granted to each Named Executive Officer in 2007, one-half require a return multiple of at least 1.5 and one-half require a return multiple of at least 2.0.

Table 1: Summary Statistics

Deal characteristics are from Bloomberg. Total value and premium are the total dollar amount required to buy out existing shareholders at the suggested purchase price and premium over the stock price at the deal announcement date. \$ cashed out is the sum of all payments made to the CEO as disclosed in form DEFM 14a. \$ buy-in is the total dollar amount of equity purchases of the CEO at the transaction price and comes from SEC disclosures. Target characteristics are measured at the end of the last fiscal year prior to the LBO announcement date and are based on accounting data from Compustat. The sample is 20 large leveraged buyouts of publicly listed U.S. firms 2005-2007 that are financed with public debt and that require disclosure with the U.S. Securities and Exchange Commission.

Panel A: Deal Characteristics

	Average	Median	St. dev.	Min.	Max.
Price per share	41.58	36.63	17.97	22.00	100.00
Premium (%)	18.93	17.75	11.04	0.61	44.66
Total value (\$ Million)	9,132.64	6,182.69	9,642.67	710.32	32,193.46
Club deal (yes=1)	0.60	1.00			
EBITDA multiple	11.43	10.47	4.08	4.05	19.46
Total assets multiple	1.91	1.56	1.09	0.73	4.83
EVA multiple	1.17	1.14	0.17	0.87	1.61
Same CEO pre- and post-LBO? (yes=1)	0.60	1.00			
If same CEO: \$ cashed out	111,516,200	37,924,404	229,412,657	0	812,064,503
If same CEO: \$ buy in	43,388,589	12,125,013	79,138,519	933,066	250,000,000

Panel B: Target Characteristics

Total sales (\$ Million)	5,001.39	2,545.22	5,749.98	95.89	24,455.00
Number of employees (thousands)	37.03	13.95	64.29	0.42	240.20
Total assets (\$ Million)	6,440.87	2,481.65	8,861.09	185.66	34,460.70
Book leverage	0.20	0.17	0.15	0.00	0.50
Cash / assets	0.11	0.06	0.16	0.00	0.70
Interest coverage	16.32	7.95	17.73	2.18	65.72
Return on assets	0.08	0.07	0.05	0.02	0.22
Capital expenditures / assets	0.05	0.05	0.03	0.00	0.10
PPE / assets	0.24	0.26	0.15	0.02	0.51
Dividend payer (yes=1)	0.50	0.50	0.51	0.00	1.00

Table 2: Corporate Governance Characteristics

Data on ownership by private equity sponsors and management post LBO come from company filings with the SEC. This information is contained in the section “security ownership of certain beneficial owners and management”. Mgmt stake is greater than zero for deals in which management was described as one of the primary investors in the buyout, and zero otherwise. Data on boards of directors come from company filings with the SEC. Institutional ownership data, inside ownership, and block ownership pre-LBO come from the Corporate Library. The sample is 20 large leveraged buyouts of publicly listed U.S. firms 2005-2007 that are financed with public debt and that require disclosure with the U.S. Securities and Exchange Commission.

Panel A: Ownership Characteristics

	Average	Median	St. dev.	Min.	Max.
Pre-LBO					
Director and officer ownership	12.2%	6.1%	16.4%	0.1%	60.6%
Block ownership	20.0%	20.2%	15.5%	0.0%	61.0%
Number of outside blocks	2.75	2	2.15	0	8
Post-LBO					
Private Equity Sponsors	91.8%	97.0%	10.0%	68.1%	100.0%
Management stake (if a primary investor)	4.2%	0.0%	9.3%	0.0%	30.4%

Panel B: Board Characteristics

Pre-LBO					
Board size	9.6	10	2.3	5	14
Employee directors	1.6	1	0.8	1	3
Outside directors	7.4	8	2.1	3	11
Former employee directors	0.6	0	0.9	0	3
Post-LBO					
Board size	8.3	9	2.6	4	13
LBO sponsor directors	5.5	5	2.5	2	11
Employee directors	1.2	1	0.4	1	2
Outside directors	1.4	1	1.6	0	5
Former employee directors	0.2	0	0.4	0	1

Table 3: Design of CEO Compensation Contracts

Data on the compensation come from the tables and narrative on executive compensation in company filings with the SEC. Tax gross-up is compensation paid to the CEO to cover the tax liability for perquisites or other elements of compensation that trigger a tax liability (such as option exercises). The sample contains 20 large leveraged buyouts of publicly listed U.S. firms between 2005 and 2007 that are financed with public debt and that trigger disclosure requirements with the U.S. Securities and Exchange Commission.

	Pre-LBO		Post-LBO		% with	% with
	Average	Median	Average	Median	increase	decrease
Base salary	798,419	833,000	945,797	1,000,000	63%	11%
Target bonus	1,092,192	975,000	1,272,024	1,166,923	67%	33%
Bonus based on EPS or net income	60%		10%			
Bonus based on EBITDA	10%		80%			
Bonus based on other criteria	30%		10%			
Perquisites: Dollar value	42,599	17,662	180,077	18,288	35%	35%
Perquisites: Personal use of corporate aircraft (%)	42%		40%			
Perquisites: Tax gross-up (%)	60%		70%			

Table 4: Design of Severance and Separation Pay Contracts

Data on severance payments upon termination without cause and payments in case of change of control come from the tables and narrative on executive compensation in company filings with the SEC or from executive employment contracts also filed with the SEC. The sample contains 20 large leveraged buyouts of publicly listed U.S. firms between 2005 and 2007 that are financed with public debt and that trigger disclosure requirements with the U.S. Securities and Exchange Commission.

Panel A: Contractual arrangements upon termination without cause / resignation for good reason

	Pre-LBO		Post-LBO	
	Average	Median	Average	Median
Base salary (multiple paid)	2.3	2	2.1	2
Past annual bonus (multiple paid)	2.2	2	1.8	2
Are unvested options cancelled? (yes=1)	29%		61%	
Do restricted shares vest immediately? (yes=1)	71%		46%	
Does PE sponsor have right of first refusal?			71%	

Panel B: Contractual arrangements upon change of control

	Pre-LBO		Post-LBO	
	Average	Median	Average	Median
Base salary (multiple paid)	2.8	3	2.4	2
Past annual bonus (multiple paid)	2.8	3	2.3	2
Are unvested options cancelled? (yes=1)	12%		16%	
Do restricted shares vest immediately? (yes=1)	90%		100%	

Table 5: Design of CEO Equity Incentives Pre-LBO

Data on the compensation come from the tables and narrative on executive compensation in company filings with the SEC. The first three rows show the equity mix, defined as number of securities divided by total ownership. For the purposes of total ownership, all options are counted with a delta of one, no matter whether they are exercisable or not. The sample contains 20 large leveraged buyouts of publicly listed U.S. firms between 2005 and 2007 that are financed with public debt and that trigger disclosure requirements with the U.S. Securities and Exchange Commission.

	Average	Median
Equity mix		
Number of options / total ownership	66.9%	75.6%
Number of restricted stock / total ownership	4.6%	0.3%
Number of unrestricted shares / total ownership	28.5%	13.7%
Dollar values		
Intrinsic value of unexercised exercisable options	\$9,547,909	\$4,927,875
Intrinsic value of unexercised unexercisable options	\$2,665,770	\$967,750
Value of restricted stock	\$2,162,886	\$452,857
Value of shares owned outright (at LBO price)	\$123,206,518	\$9,238,482

Table 6: Design of CEO Equity Incentives Post-LBO

Data on the compensation come from the tables and narrative on executive compensation in company filings with the SEC. The sample contains 20 large leveraged buyouts of publicly listed U.S. firms between 2005 and 2007 that are financed with public debt and that trigger disclosure requirements with the U.S. Securities and Exchange Commission.

	Average	Median
Equity mix		
Number of options / total ownership	56.6%	74%
Number of restricted stock / total ownership	17.1%	0%
Number of unrestricted shares / total ownership	26.3%	17.9%
% with performance vesting equity	90.0%	
Equity mix, details		
Number of performance vesting options / total ownership	21.7%	
Number of performance vesting restricted stock / total ownership	7.1%	
Number of premium options / total ownership	4.9%	
Number of time vesting options / total ownership	24.7%	
Number of time vesting restricted stock / total ownership	10.0%	
Number of options conditional on buy-in / tot ownership	5.3%	

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