

CEO COMPENSATION IN PRIVATE VENTURE-BACKED COMPANIES

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This paper is an empirical study of CEO compensation in private venture-backed companies. We examine a previously unexplored survey-based employee compensation dataset collected by VentureOne that covers 1,585 U.S. companies in the period 2002-2006. Our findings document that CEO compensation is tied to company performance. Not only do CEOs hold relatively large equity ownership stakes, but their cash compensation is linked to both operating growth and fundraising success. Our results suggest that even for venture-backed companies that are already subject to a range of strong governance mechanisms, executive compensation contracts are structured to minimize agency problems. We also find that there are large differences in compensation between founder CEOs and non-founder CEOs.

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1. Introduction

In this paper we study CEO cash and equity compensation in an important group of entrepreneurial firms. Using a large survey-based dataset compiled by VentureOne, we establish that CEOs of private venture-backed firms hold relatively large equity stakes, and are rewarded for both firm-specific operating performance and success in fundraising, with CEO base salary being generally more sensitive to fundraising success and bonus pay more dependent on operating performance. Our findings shed light on how and why top level compensation is determined in a key subset of private companies, and expand our understanding of the breadth of the mechanisms that venture investors use to solve the severe agency problems that they face.

Venture capitalists (VCs) play a vital role in the U.S. economy by supplying equity to high risk, high potential early-stage companies, particularly in the growing technology and healthcare sectors. Such firms find it hard to secure funding through traditional channels for several reasons: their future cash flows are highly uncertain; the entrepreneurs know far more about their true technological, scientific and business prospects than do prospective investors or strategic partners; and firms' main assets are specific and intangible (Gompers and Lerner, 2000). External financing is also difficult to secure because future cash flows can only be achieved if the CEO of the company is induced to make the optimal quantity and quality of entrepreneurial effort, and corporate governance is structured so that moral hazard is minimized.

Prior research has shown that VCs utilize a variety of mechanisms to overcome the agency problems they face, many of which differ in form or emphasis from those used by public companies. For example, whereas management often controls the Board of Directors in public companies (Shivdasani and Yermack, 1999, Bebchuk and Fried, 2004), VCs dominate a venture-backed firm's Board and are actively involved in professionalizing management (Lerner, 1995; Hellmann, 2000; Hellman and Puri, 2002; Wongsunwai, 2007). Also, and in contrast to the lack of differentiation in stockholders rights in public companies, VCs impose special voting rights on their investments (Hellmann, 1998; Kaplan and Strömberg, 2003) and have veto power over important business decisions (Bratton, 2002). VCs also stage and syndicate their financing (Bergemann and Hege, 1998; Seppä, 2003) and rely on sophisticated financial instruments that make control and cash flows to entrepreneurs contingent on ultimate company success (Kaplan and Strömberg, 2003, 2004). Investors in public companies generally do not.

In this paper we explore how and why VCs rely on the main corporate governance tool used by public companies to mitigate agency costs—viz. compensation, particularly that of the CEO. Since compensation in private companies is not yet well studied, our goals are modest. We seek to introduce a large survey-based compensation dataset compiled by VentureOne, empirically assess how and why the level and structure of CEO compensation depends on firm operating and fundraising performance in a setting where agency problems are likely severe, and explore to what extent executive compensation contracts are structured to minimize agency problems in firms that are already subject to a range of strong governance mechanisms.

We start by documenting that compensation is important in and to venture-backed firms. In VentureOne’s CompensationProTM dataset, not only does the median CEO hold 6% of the firm’s fully diluted equity valued at \$1.7M, but he/she is also paid \$240,000 in yearly cash compensation, of which \$200,000 is base salary. Although the CEO’s cash compensation is only weakly negatively correlated with his equity ownership, it is strongly positively correlated with the value of that ownership. Cash and equity compensation therefore appear to be complements rather than substitutes in venture-backed firms. We also find that the median founder CEO holds 2% more equity ownership than does the median non-founder CEO, but that the value of such equity compensation is \$40,000 less.¹

If VCs use compensation as a governance tool, we would expect CEO pay to be increasing in firm performance. We find empirical support for this proposition, particularly for cash pay where the majority of detailed compensation information is available in VentureOne’s dataset. In the cross-section we observe that CEO total cash compensation is reliably increasing in both revenues and the number of employees, two key measures of young technology-intensive firms’ operating performance. A doubling of number of employees is associated with a 15% increase in CEO cash compensation, while a doubling of revenues is associated with a 5% increase. As compared to (mature) public companies, the revenue pay elasticity is considerably smaller in private venture-backed companies. While CEOs of profitable companies do not have significantly higher cash compensation than CEOs of unprofitable companies, we find that profitability is more important for older companies. In the time-series, cash compensation is increasing in the number of employees and rises when the company becomes profitable.

¹ Wasserman (2006) proposes and finds evidence consistent with the view that founder CEOs receive lower cash compensation than non-founder CEOs because they are intrinsically more motivated from working in and for their own company.

We also establish that CEO cash compensation is greater in companies that have raised more VC financing, especially in their most recent financing round, and that the economic magnitude of the compensation elasticity of fundraising is similar to that of operating performance. For example, private venture-backed firms whose last financing round raised more than the median sample amount of \$7.6 million pay their CEOs approximately \$50,000 or 22% more than companies below the median. Controlling for company performance, valuation, and proxies for growth, a doubling of the money raised in the last VC round is associated with an 8% increase in a CEO's cash compensation. When operating and financing performance are interacted, the relation between CEO pay and performance is higher for lower amounts of financing. We conjecture that this is because the CEO of a company with weak operating performance will find it more difficult to raise capital and will therefore be rewarded more if he or she successfully secures funding as compared to the CEO of a company with strong operating performance. Finally, we find that CEOs are rewarded for the quality of their financing in that CEO compensation is higher when the financing is raised from older or more experienced VCs. This evidence is line with the finding in previous studies that entrepreneurs prefer more experienced VCs as investors (Hsu, 2004) and that such experienced VCs are able to add more value to portfolio companies (Sorensen, 2007).

Overall, our results indicate that CEOs in venture-backed companies are rewarded for both operating performance and successful fundraising. Although data limitations prevent us from showing that better operating results and larger fundraising translate into higher returns for VCs, we posit that this is more likely to be the case than it would be for greater reported profitability or free cash flows translating into higher VC returns. While near-term earnings and free cash flows are crucial performance metrics for mature public companies, they are less informative for early stage firms. The typical venture-backed startup begins as a new scientific idea or technology that despite being very risky, holds the long-term potential of earning huge profits—but only after very large sums have been spent on discovery and/or product development, and very rapid internal (employees) and external (revenue) growth has subsequently been achieved. This means that early stage companies experience long periods of negative free cash flows that can only be financed via external equity, making the ability of the CEO to secure that equity (and thereby keep the firm alive), and then rapidly grow the firm to

where it has sufficiently dominated its target market that it is cash flow positive and does not need to rely on further external capital, of critical importance to the firm.

From a theoretical perspective, we view our findings as being consistent with a modified Holmström (1979) model in which VCs optimally tie cash compensation contracts to proxies for company growth and fundraising so as to minimize the agency problem between the CEO and investors. Although investors care only about monetary payoffs, the CEO also receives non-monetary utility from job security, a light workday (e.g., avoiding tough decisions and leaving the office early), and the social status that comes with running the organization. As discussed above, growth in revenues and number of employees are signals that the company is following a value-maximizing strategy. Growth in revenues and employees are also indicative of strong company performance because they cannot be easily be manipulated by the CEO of an early stage company – it is intrinsically hard to convince potential customers to invest in an untested product or to convince potential employees to join a small risky company. Similarly, compensation incentives should be tied to fundraising success because fundraising is important for company survival and also constitute a directly verifiable performance metric that it is very difficult for the CEO to manipulate. Unlike with public companies, fundraising for private early-stage companies is a hard, non-standardized task for which the CEO needs to be incentivized.

Based on our findings that cash compensation is tied to company performance, we make two inferences about how VCs successfully achieve effective governance on their portfolio companies. Following Zingales (1998), we define corporate governance as the set of constraints that shape the ex-post bargaining between investors and managers over the quasi-rents generated by the firm. Our first inference is that VCs appear to have sufficient information and bargaining power to set optimal compensation contracts. Private venture-backed companies do not suffer from the managerial power and rent extraction that has been found by some researchers in public companies (Bebchuk, Fried and Walker, 2002; Bebchuk and Fried, 2003, 2004; Bebchuk and Grinstein, 2005). This is perhaps not surprising because VCs have substantial opportunity to use their active involvement and concentrated ownership to create and enforce strong governance.

Our second inference is that although VCs implement strong governance, the set of mechanisms may be incomplete if compensation is omitted. As a result, cash compensation works as an effective governance tool—even in venture-backed firms where the agency problems are severe and the overall governance regime is very strong—because it allows the

Vcs to tackle *residual* agency problems. Although Vcs are active in the company board and have frequent interactions with the CEO, VC involvement is necessarily imperfect. For example, even after putting into place a wide and deep set of non-compensation-based governance mechanisms, the CEO retains considerable freedom to make decisions that are important for the company's growth, performance and survival. As such, it may be that residual agency problems related to the CEO's decision freedom arise that can only be solved by giving her long-term cash flow incentives such as a large equity ownership stake, requiring the vesting of her options and shares, and convertible preferred stock used by Vcs to allocate more cash flows to the CEOs if the company is sold for a higher price. Our empirical findings on CEO cash compensation suggest that despite the impressive array of governance mechanisms available to Vcs, some agency problems are plausibly (best) solved by performance-based cash compensation. As we discuss in Section 5.9, because cash compensation is an annual distribution of actual dollars, it has several advantages over equity compensation.

The remainder of the paper proceeds as follows. We first discuss how our study relates to the large body of existing research into CEO compensation, and why we believe our contribution is relevant. We then introduce our dataset and discuss summary statistics on CEO compensation. Next, we explore how CEO cash and equity compensation varies with different performance and fundraising variables and discuss various explanations for these results. We then explore differences between founder CEOs and non-founder CEOs and discuss other empirical results. The paper concludes with a short summary.

2. Relation to Existing Research on Executive Compensation

CEO compensation in public firms has been extensively studied (Baker et al., 1988; Jensen and Murphy, 1990; Hall and Liebman, 1998; Murphy and Zábojník, 2004). In contrast, our paper is one of only a few that examines CEO compensation in early stage companies. CEO compensation has been sparsely analyzed outside of public firms because it is difficult to obtain large sample, high quality compensation data. Private companies are not required to publicly disclose executive pay, and investors such as Vcs are reluctant to share data from their portfolio firms. We finesse this barrier and explore CEO compensation in a large number of venture-backed private companies thanks to the generosity of VentureOne in granting us access to the information in their large and proprietary survey-based CompensationProTM dataset.

What, however, can be learned from exploring CEO compensation in private venture-backed companies that is not already known from studies in public firms, or from work such as Cole and Mehran (2007) who examine CEO pay in a broad sample of small U.S. businesses, or Conyon and He (2004) and Wasserman (2006) who investigate executive compensation in private technology firms? We suggest that there are three reasons why research into the causes and consequences of employee compensation—particularly CEOs—in private venture-backed U.S. companies is relevant and worthwhile.

First, although venture-backed companies are typically small while they are private, the most successful rapidly become key parts of the U.S. economy. Many of today's biggest and most globally renowned companies—AmGen, Apple, Cisco, FedEx, Genentech, Google and YouTube to name but a few—were backed by venture capital. In 2005 alone, 56 venture-backed firms went public for a total offer amount of \$4.4 billion, and the total disclosed M&A volume for venture-backed firms was \$16.1 billion (NVCA, 2006). However, despite this economic significance, business scholars have only recently begun to systematically analyze the processes by which new firms, especially those whose assets are predominantly intangible, are created and the factors that govern whether, when and how they succeed or fail (Zingales, 2000; Kaplan, Sensoy and Strömberg, 2006). Our paper therefore contributes in a “basic research” manner to understanding an increasingly important class of companies.

Second, venture-backed private firms differ in significant ways from public companies and CEO compensation contracts should reflect such differences. We argue that while CEOs of public companies should be compensated primarily for higher earnings and cash flows, CEOs of private venture-backed should be paid more for operating growth. Also, the information and liquidity imperfections that characterize private capital markets mean that the performance for which CEOs should be rewarded is likely broader than has been presumed in the public capital markets CEO compensation literature. In particular, when managerial effort and skill is required, CEOs should be rewarded for financing success, not just operating success, particularly when the firm is capital constrained. Private venture-backed firms offer a powerful opportunity to test the degree to which this broader view of the structure of optimal compensation contracts is valid.

Finally, CEO compensation is a disproportionately large expense for early stage firms. Although startup CEOs typically earn lower dollar amounts of compensation than do public company CEOs, their compensation is a much larger fraction of total company expenses. Based

on computations from Execucomp data, the median S&P 1500 CEO received \$1.2 million in cash compensation in the period 2002-2005, or 0.8% of firm revenues. In contrast, the median CEO in our sample is paid \$186,000 per year or 48% of firm revenues for a seed stage company, and \$277,000 per year or 2.3% of firm revenues for a company that has closed a fifth round of venture funding. The relative size of CEO compensation in private venture-backed firms suggests that it is all the more crucial to investors in private venture-backed firms that the CEO's compensation be optimally set, because the cash flow and/or firm-survival costs of incorrectly structuring CEO compensation are likely to be much higher than in public companies.

3. Data

3.1 Sample

The data in our study come from detailed, proprietary surveys conducted by VentureOne, a primary worldwide provider of data on VC investments and VC funds.² A total of eight CompensationProTM surveys covering the period 2002-2006 are included in our sample.³ In each survey VentureOne emailed a multi-page web-based compensation questionnaire to the approximately 7,000 venture-backed companies in its financing database that it classified at the time as being private and independent. The questionnaire asked companies to provide a broad set of compensation- and business-related information. For example, companies were asked to report the dollar values of the base salary, bonus, and other cash compensation of every employee (up to a maximum of 50 people from the most senior person down); the total shares of founder's stock and exercised and unexercised options that each held; and the total fully diluted and common shares the companies had outstanding. In terms of business information, VentureOne asked each company to provide its actual revenues for its most recent fiscal year and expected revenues for its current fiscal year, the number of employees at the end of its most recent fiscal year, and the number it expected to have at the end of its current fiscal year.

As reported in Table 1 panel A, a total of 2,975 venture-backed firms responded to one or more of the VentureOne surveys, thereby providing us with compensation data on 61,005 executive-survey pairs. We limit our sample to executives who are either classified as CEOs or

² The authors were generously granted access to VentureOne's data after signing strict nondisclosure agreements.

³ The surveys were undertaken in spring 2002, spring and fall of 2003, spring and fall of 2004, spring and fall of 2005, and spring of 2006.

Presidents (we denote such executives as CEOs). For companies that responded to both spring and fall surveys in a given year we use only the spring survey. This restriction limits our sample to 4,921 CEO-year observations for 2,913 companies.

We then matched the compensation survey data to VentureOne's financing and general support databases. To be included in our final sample a company needed to have information about location (U.S. state), industry, revenues and employees of previous year, and equity ownership for both the CEO and VCs as a group. Also, each firm must have closed at least one seed or VC financing round prior to the survey date.⁴ We exclude companies for which at least one VC investor cannot be identified or the financing amount of the last round is not disclosed. We remove observations with obviously incorrect data and companies founded before 1980.

The final sample comprises 2,816 observations taken from 1,585 companies. As indicated by these figures, our final sample covers a large number of different companies but has few time-series observations for each company. When we impose the restriction that the company discloses the dollar valuation of its last VC financing round, the sample drops to 1,252 observations from 755 companies. We are confined to this subsample when we need to calculate the implied value of the CEO's equity ownership or when we include post-money valuation as a proxy for growth in regressions. Table 1 panel B tabulates the final sample by survey year. Some firms list more than one CEO or list both a president and a CEO. Per Table 1 panel C, approximately 88% (2,471/2,816) of all observations are unique company/year observations.

3.2 Selection Bias

The fact that both compensation and performance data are collected from surveys that companies complete on voluntary basis has the potential to introduce selection biases. While we are unable to measure the magnitude of such biases, three considerations lead us to believe that selection bias is unlikely to materially affect the inferences we draw from our empirical tests. First, our sample of 1,585 companies covers a substantial fraction (approximately 20%) of all U.S. venture-backed companies in the period 2002-2006. Second, by including geographical location, industry and company maturity as independent variables in our regressions, we control to some degree for selection effects related to these factors. Lastly, while it is possible that the

⁴ We exclude companies where the last VC round was number 7 or more. Such companies are likely to have different characteristics than normal startup-type venture-backed firms.

VentureOne dataset oversamples companies with good operating and/or financial performance, we believe it is unlikely that such oversampling would be confined to companies with both good performance and high CEO compensation. Thus, whereas the potential oversampling of successful companies in our sample could lead to an overstatement of the average and median compensation levels, we suggest that it is unlikely to affect cross-sectional regression results.

In contrast, the subsample for which we have data on the firm's post-money valuation at the last VC financing round is not likely to be a random one. This subsample is more likely to comprise companies with higher valuations because failed companies and their VC investors are probably less willing to report valuation data. In unreported regressions we test whether the observations with valuation data differs from other observations. We find that companies with fewer *Employees*, higher *Revenues* and larger *VC Financing Raised in Last Round* are more likely to report valuation data. While this selection bias affects the unconditional values of the CEO's cash and equity compensation, we argue that it is unlikely to affect the inferences we draw from our estimated regression coefficients as they measure differences within the sample.

3.3 *Descriptive Statistics for General Variables*

Descriptive statistics for non-CEO-compensation variables are reported in Table 2 panel A. The identity of the CEO is not revealed in the surveys but we are able to determine whether the CEO was a *Founder*; currently *Chairman of the Board*; or was *Hired in the Prior 6 Months*. CEO turnover is low in that only 5% of CEOs are Board Chairmen, and only 5% were hired in the six months preceding the survey. Almost half (42%) of all CEOs are founders.⁵

VentureOne asks companies to provide data on how many *Employees* they have at the end of the calendar year prior to the survey. We match each such interval with the median number of employees derived from a subsample of actual employees. The variable *Revenues* in the previous calendar year is also only given in dollar intervals and we translate each survey response to the median value for each such interval. The companies also input whether they are *Profitable* but provide no numerical estimate of the magnitude of their net income (or loss).⁶ The average *Company Age* was 3.7 years at the time of the survey.

⁵ VentureOne's surveys do not include questions about CEO personal characteristics such as age, gender, education and prior work experience. The surveys also do not reveal the identity of the CEO.

⁶ VentureOne reports the variables *Employees*, *Revenues*, and *Profitable* by interval(s), not their continuous values. As shown by Irwin and McClelland (2003), when two or more intervalled variables are included in a multiple

The surveys do not ask for data about VC financing but VentureOne collects such data from other public and private sources. We identify the last seed or VC financing round prior to the survey date, and from it create a *Round Number* variable that is equal to 1 for a seed stage round, 2 for the first VC round, 3 for the second VC round and so on. As of the survey date, the typical company has closed its second VC round. We create two variables that measure the amount of financing that the company has received. The variable *VC Financing Except Last Round* is the cumulative amount of financing received from VCs and other investors in all rounds prior to the last round of VC financing, including any non-VC round such as debt financing, a round where only corporate VCs participated, etc. *VC Financing Raised in Last Round* is the financing the company received in its last round of VC financing. The average amount for *VC Financing Raised in Last Round* is \$11.7 million, reflecting a right-skewness in the distribution with several companies having raised more than \$100 million.

Almost all (89%) of firms' most recent VC financings were syndicated and 63% included a VC who was not an investor in a previous round participating. VentureOne identifies a lead investor for most rounds, and for other rounds we randomly assign an existing VC to be the lead investor. We create two experience variables for the lead investor: *Age of Lead VC* and *Experience of Lead VC*. The latter is defined as the number of portfolio companies in which the VC has ever invested as of the survey date. As shown by Seppä (2003), Sorensen (2007) and Hochberg, Ljungqvist and Lu (2007), *Experience of Lead VC* is positively correlated with the performance of the VC's portfolio companies.

4. Summary Results on CEO Compensation

4.1 Definitions of Compensation Variables

CEO total compensation has two key components—equity ownership and cash pay. Neither fringe benefits nor lavish pension plans are a major part of CEO compensation for the type of firms we study (Hand, 2006). VentureOne's surveys ask each company to give detailed information on the different parts of the CEO's cash compensation – *Base Salary*, *Bonus* and *Other Compensation*. We define *CEO Total Cash Compensation* to be the sum of these parts,

regression, the estimated coefficients on those variables may be biased. However, the direction of such biases cannot be determined without knowledge of the properties of the underlying continuous variables.

and use it as our primary measure of CEO cash pay. In doing so, we note that *CEO Total Cash Compensation* excludes non-cash compensation such as stock option grants and share grants.

While our data on cash compensation is very detailed, we have much less information on equity compensation. VentureOne's survey does not ask companies to provide information on stock options and vested shares they have granted to individual employees.⁷ Thus, we are unable to calculate the yearly change in the CEO's equity ownership. Even if data on options and equity grants were available, it would be difficult to separate out the part of such compensation that pertains to current period performance from the part that pertains for dilutive events from the part that follows from a pre-determined vesting schedule.⁸ In addition, even if it were possible to separate out the work compensation part of option and equity grants, that part would be hard to value with much precision. The companies we study are private and do not have common equity values that are set in a liquid market on a regular basis.⁹

Due to these limitations, we are restricted in our ability to analyze the equity component of CEO pay. Namely, VentureOne's surveys do ask firms to report the fraction of total firm equity the CEO holds, which we denote as *% Equity Ownership of CEO*. This variable is calculated by dividing the sum of all options and shares owned by the CEO (assuming all options are exercised and all shares vested) with the total number of outstanding shares (common plus preferred, assuming all options are exercised and all shares vested). We define *Implied Value of Equity Ownership* as the product of *% Equity Ownership of CEO* and the post-money valuation of the last previous VC round. We can, however, only calculate *Implied Value of Equity Ownership* for less than half of our sample.

4.2 Descriptive Statistics for Compensation Variables

Table 2 panel B reports descriptive statistics for the CEO compensation variables. On the average, *CEO Total Cash Compensation* averages \$246,000 per year, of which \$35,000 (14%) is in the form of a cash *Bonus*. Bonuses are paid to CEOs about half the time. Yearly *Other*

⁷ VentureOne does provide data on the fraction of employees that have been granted options (Hand, 2007).

⁸ Following a new financing round, executives are often allocated stock options to compensate for the dilution of cash flow rights that follows from the newly issued preferred stock with attached liquidation preferences.

⁹ Equity prices based on arms-length transactions between venture-backed private firms and investors are typically only observed at formal financing rounds. Such financing rounds usually occur one to two years apart. This makes estimating the firm-specific inputs of standard option valuation models (the level of the firm's stock price and the volatility of the returns on the firm's common stock) very difficult.

Compensation averages only \$2,000. Overall, these numbers show that CEOs of startup companies receive relatively large cash compensation regardless of whether the company is successfully sold or taken public. The total cash compensation for our average sample CEO is about twice that of an entry MBA-level job. In Figures 1 and 2 we display histograms of *CEO Total Cash Compensation* and *Bonus*, respectively. Not unexpectedly, the distribution of *CEO Total Cash Compensation* is right-skewed, with the skewness coming almost entirely from the *Bonus* component. Of *Bonus* observations, 49% are zero and the remaining 51% are clustered at smaller, not larger values.

As shown in the histogram in Figure 3, the average % *Equity Ownership of CEO* is 9% in our sample.¹⁰ The median % *Equity Ownership of CEO* is 6% with only a few CEOs owning more than 20%. Figure 4 displays a histogram of *Implied Value of Equity Ownership*. The mean *Implied Value of Equity Ownership* is \$4.63 million, but the median is significantly lower at \$1.70 million. As we discuss later, these figures are likely overstated due to selection bias. About 10% of all sample CEOs have more than \$10 million in *Implied Value of Equity Ownership*. For such CEOs, the *Total Cash Compensation* is clearly a small fraction of *Implied Value of Equity Ownership*. However, the yearly *Total Cash Compensation* to the median CEO in our sample is about 13% of *Implied Value of Equity Ownership*.¹¹ Thus, if the levels of cash compensation and equity value were to remain unchanged over the company's lifecycle, about 8 years of cash compensation would equal the equity value held by the median CEO.

4.3 *Univariate Differences in Compensation*

Table 3 summarizes CEO compensation across several different subsamples. In univariate comparisons, *CEO Total Cash Compensation* is increasing in the round number (of the last VC round), revenues, employees, and the money the firm raised in its last financing round. On average, the CEO of a firm that has raised its first round of venture funding earns total compensation of \$189,000. This figure increases to \$280,000 for the CEO of a firm that has successfully just raised a 7th financing round. The total cash compensation of the CEO of a company with no or almost no revenues (defined as less than \$0.5 million) earns on average

¹⁰ This ownership fraction typically translates into a lower fraction of actual cash flows due to frequent use of convertible participating preferred securities by investing VCs.

¹¹ The average for this fraction is 122% but this number is uninformative because about 9% of all CEOs hold less than 1% of the equity with a very high fraction as a result.

\$232,000 which increases to \$307,000 for a company whose yearly revenues exceed \$20 million. The CEO of a firm with fewer than 10 employees earns an average of \$202,000 in total compensation, whereas CEOs of firms with more than 100 employees earn an average of \$295,000. Finally, a CEO whose firm raised less than \$3 million in its last financing round earns \$210,000 versus a CEO whose firm raised more than \$17 million received \$290,000.

Table 3 also summarizes the distribution of *% Equity Ownership of CEO*. Overall, there is a weak pattern of *% Equity Ownership of CEO* being lower for companies that have received more financing rounds, have higher revenues, higher employees, and have raised more money in their most recent financing round. This result likely reflects the dilution in *% Equity Ownership of CEO* that occurs when the company raises additional VC financing. A dilution in percentage ownership is not, however, equivalent to a decrease in the value of the CEO's equity ownership. If the new financing round is closed at the same or higher valuation as the previous, the *Implied Value of CEO Equity* increases. We find evidence of this in that *Implied Value of CEO Equity* is higher for companies that have received more financing rounds, have higher revenues, higher employees, and have raised more money in their most recent financing round.

Comparing across the sample period, we find that both *% Equity Ownership of CEO* and *Implied Value of CEO Equity* were higher in 2002-2003 than in 2004-2006. *CEO Total Cash Compensation* is increasing over time with the exception of a decline in 2004. Finally, *CEO Total Cash Compensation* appears to be higher for companies in the Healthcare/Biotechnology sector compared with companies in Information Technology or other sectors. However, the variable *% Equity Ownership of CEO* is similar across industries.

5. Main Empirical Results

Having established that the typical CEO of a venture-backed private company receives sizeable cash compensation and holds a large fraction of the outstanding equity, we turn to study how the equity and cash components correlate with key dimensions of company performance. Our empirical testing proceeds as follows. First, we examine whether variables that measure company maturity, operating performance and fundraising success increase the CEO's cash compensation. We then study how the same variables affect the CEO's equity compensation, using both *% Equity Ownership of CEO* and *Implied Value of CEO Equity*. Lastly, we examine whether cash and equity compensation are associated with each other.

In all our regressions, compensation and performance variables that are dollar denominated are logged so as to yield coefficient estimates that are elasticities and to mitigate the impact of outliers. We include year dummies to control for common macroeconomic factors. To reduce the likelihood that standard errors will be affected by time-series correlation we cluster regression residuals by company.¹² Most specifications also include state and industry dummies to control for systematic differences in firms' production functions, investment opportunity sets, or information environments.

Ideally, and as in Wasserman (2006), we would like to include detailed personal characteristics of the CEO in our regressions. Unfortunately, this data is not directly included in the VentureOne surveys, nor is the identity of the CEO disclosed. What we do know is whether the CEO is a *Founder*, whether he/she was *Hired in the Last 6 Months* as CEO, and if he/she also serves as *Chairman of the Board*. We include these variables in most regression models but find that they rarely affect the significance of other estimated coefficients. We also find insignificant differences in the cash and equity compensation of CEOs *Hired in the Last 6 Months* and CEOs who serve as *Chairman of the Board*. However, as in Wasserman (2006), we do find differences for *Founder* CEOs versus non-founder CEOs. We discuss these differences in Section 6.

5.1 *Cash Compensation and Company Operating Performance*

Using our full sample, Table 4 reports the results of regressions where *CEO Total Cash Compensation* is the dependent variable. Univariate regressions 4.I and 4.II indicate that *CEO Total Cash Compensation* increases with company maturity, regardless of whether maturity is measured by company age or by the number of VC rounds that the company has secured. The coefficient estimates are also relatively large—a doubling of *Company Age* is associated with a 23% increase in *CEO Total Cash Compensation*, and each financing round increases *CEO Total Cash Compensation* by 8%.

We next study whether *CEO Total Cash Compensation* increases with the level and/or growth in company operations. Unlike mature firms where high (low) cash flows reflect strong (weak) operating performance, in young technology firms high (low) cash flows often indicate weak (strong) investment performance. This is because startups financed by VCs specialize in rapidly spending large sums discovering and/or converting highly risky new ideas into saleable

¹² See Petersen (2006) for a good overview of solutions to estimation problems in panel datasets.

products and services, leveraged by human capital and intellectual expertise. We therefore measure operating performance using *Employees*, *Revenues* and *Dummy Profitable*.¹³

Regression 4.III establishes that CEO compensation is reliably increasing in *Employees*, with the estimates regression coefficient indicating that a doubling of *Employees* is associated in the cross-section with a 15% increase in *CEO Total Cash Compensation*. Model 4.IV utilizes *Revenues* and *Profitable* as alternative measures of operating performance. We find that a doubling of *Revenues* leads to a 5% increase in compensation, while the coefficient on *Profitable* is insignificant. In an unreported regression we observe a positive and weakly significant coefficient when *Profitable* is interacted with *Company Age*. Thus while profitability is a not an important performance measure early in a private venture-backed company lifecycle, it becomes more important as the company matures.¹⁴ Overall, our results show that cash compensation is higher for companies with high operating growth. As shown in model 4.V, *CEO Total Cash Compensation* is higher for companies with expected employee growth but lower for companies with higher one-year-ahead expected growth in revenues.

5.2 Cash Compensation and Fundraising Success

Next, we test whether CEO pay increases in the firm's financing performance. Pay-for-performance studies of U.S. public companies have not explored the link between CEO compensation and financing because there is little reason to expect such a relationship when capital markets are liquid, open, highly regulated, and deep. Whereas U.S. public capital markets are close to being perfect, early stage companies are confined to raising capital from somewhat imperfect private equity markets in which CEOs and CFOs have to spend much effort finding, convincing and contracting with prospective investors.¹⁵ Moreover, not only it is harder

¹³ One objection to using employee headcount as a positive performance measure is that the CEO could just excessively hire people. While this may be true for a mature established company, hiring in a risky early stage company is a matching process where prospective employees have to believe in the company's survival in order to motivate their company-specific investment.

¹⁴ This may partly be explained by the firm's accounting income becoming a less distorted measure of its true income as it matures. Before they earn any revenues, young firms spend huge amounts of money on intellectual capital and R&D in order to discover or develop intangible assets. US accounting rules require that these investments be expensed immediately, rather than capitalized and amortized into income over time (as is the case for spending on tangible assets like PP&E). As a result, net income is more severely downward biased the greater is a firm's spending on intangibles relative to its revenues—that is, the younger is the firm. As the firm matures, this accounting bias diminishes and net income becomes a less distorted measure of true income.

¹⁵ In both public and private companies, the CFO is the person most responsible for the entity's financing activities. However, in the private venture capital market, the CEO is expected to personally present the firm's financing needs

for early stage private companies to raise capital but it is also more important. The typical early stage company grows so fast that it exhibits negative free cash flows for some time, making regular injections of external equity capital essential to the firm's survival and success.

Table 5 shows the results of regressions that use *CEO Total Cash Compensation* as the dependent variable using our full data sample. In model 5.I we use two measures of financing success: *VC Financing Raised in Last Round* and *VC Financing Except Last Round*. We find that the elasticity of each measure is reliably positive, and note that the elasticity on most recent VC money raised is approximately seven times larger than VC money raised in earlier rounds. We estimate that a doubling of *VC Financing Raised in Last Round* leads to an 11% increase in *CEO Total Cash Compensation*, while a doubling of *VC Financing Except Last Round* leads to only a 1% to 2% increase in *CEO Total Cash Compensation*. The coefficients on financing success could be biased because financing success is correlated with growth and performance variables. There are two standard econometric solutions to this problem—finding an instrument that is correlated with the fundraising but not with the performance variables, or finding variables that have a high correlation with the omitted performance variables.

While we are unable to identify a good instrument, we are able to find some variables that proxy for the performance. Our first set of performance proxies are the variables discussed above, namely *Employees*, *Revenues* and *Profitability*, together with state and industry fixed effects. As reported in Model 5.II, the estimated coefficients on the VC financing measures remain significant after controlling for *Employees*, *Revenues* and *Profitability*. The coefficients on operating performance also remain significant when controlling for fundraising success.

Our second set of performance proxies are measures of the expected one-year-ahead growth in revenues and employees, respectively. In Model 5.III, we include both the current performance measures and growth proxies and note that the coefficients on fundraising remain significant. Finally, we include the firm's post-money valuation at its last round of venture funding (which is only available for about half of our observations). Model 5.IV shows that the coefficient on firm's post-money valuation is not significant when controlling for measures of current performance and proxies for growth. However, the coefficients on fundraising remain significant even when controlling for the valuation, current performance and growth. From this

in direct meetings with one or more general partners of interested venture funds (not indirectly through investment bankers). Venture investors will rarely agree to finance a company if the CEO is disinterested in financing matters.

we infer that CEOs of private venture-backed companies are paid not only for operating performance and growth but also from the quantity of equity financing they raise from VCs.

We next determine whether *CEO Total Cash Compensation* is increasing in the quality of VC financing. Unlike public equity or debt capital, venture investors add operational value to the firm. Hellman (2000) and Hellman and Puri (2002) document that VCs take an active role in helping founders to professionalize management by helping in the hiring of key senior-level business, scientific, and technical personnel. However, the ability to add value differs across VCs. Sorensen (2007) shows that older and more experienced VCs adding greater value to their portfolio companies. Wongsunwai (2007) finds that experienced VCs are more involved in their portfolio companies by taking a large number of board seats, and Hsu (2004) shows evidence of perceived differences in value addition for different VCs, in that entrepreneurs are more likely to accept offers by more experienced VCs even if such VCs give lower valuations. The results of estimating models 5.V and 5.VI are that *CEO Total Cash Compensation* is significantly higher the greater is the *Experience of Lead VC* in terms of the total number of companies the VC has invested in. Similar results are obtained in unreported regressions where *Age of Lead VC* is used as proxy for VC quality. Hence, both quantity and quality of the VC financing are positively correlated with CEO total cash compensation.

5.3 Cash Compensation and Interaction Effects

Successfully raising VC financing is particularly difficult for companies with weak operating results. Such companies cannot point to strong growth in revenues or employees to convince investors that their business model is now or will eventually be successful. At the same time, though, the cash flow implications of the apparent lack of operating success make securing new financing all the more crucial for their survival and growth.

To test whether CEOs are more highly rewarded for successful fundraising when their firm's performance is weak, we use an identical specification to that of model VI in Table 5, but augmented to include operating/financing interactions. The results are presented in Table 6. Regression 6.I includes an interaction between *VC Financing Last Round* and *Employees*, and we note that the estimated coefficient on this interaction is reliably negative. We graphically illustrate this result in Figure 4, where *CEO Total Cash Compensation* is plotted as a function of *Revenues* for different intervals of *VC Financing Last Round*. Figure 4 shows that *CEO Total*

Cash Compensation is higher for companies with larger *VC Financing Last Round* but that this difference declines as *Revenues* increases. A similar result is found for regression model 6.II where we instead include the interaction between *VC Financing Last Round* and *Revenues*. From these results we conclude that the CEO's total cash compensation is sensitive to the firm's financing performance, and that this sensitivity is higher the weaker is the firm's operating performance. In model 6.III we find no significant results on the interaction between *VC Financing Last Round* and *Profitability*, and in model 6.IV we find a weakly negative interaction between *VC Financing Last Round* and *VC Financing Except Last Round*. The latter result suggests that the sensitivity of cash compensation to current fundraising success is smaller if the firm has raised more VC financing in earlier rounds.

5.4 *Equity Compensation*

As reported in Table 3, CEOs on average own 9% of the fully diluted equity of the company they run. And on average, that equity has an implied value of \$4.6 million (medians are 6% and \$1.7 million, respectively). In Table 7 we assess how *% Equity Ownership of CEO* varies with company operating performance and fundraising success. In the univariate regression model 7.I, we observe that *% Equity Ownership of CEO* clearly declines as the firm matures. For each new round of VC financing, the CEO's share of fully diluted equity falls by one percentage point. Similarly, models 7.II and 7.III show that *% Equity Ownership of CEO* is negatively associated with the number of employees and company revenues.

Next we test whether fundraising success leads to a fall in *% Equity Ownership of CEO*. Per model 7.IV we find that both higher *VC Financing Except Last Round* and higher *VC Financing Last Round* are associated with a lower *% Equity Ownership of CEO*. When we estimate the full multivariate regression described in model 7.V (where state and industry controls are also included), the coefficients on *VC Financing Except Last Round* and *VC Financing Last Round* remain significant but those on maturity and company performance become insignificant. This suggests that cross-sectional variation in *% Equity Ownership of CEO* primarily arises from the dilution that stems from raising more VC financing.

Dilution of the CEO's percentage ownership of the company is not necessarily the same as dilution in the dollar value of the CEO's equity ownership. If the equity issued in a new financing round is sold at a higher price than the equity in the previous round, then the dollar

value of the CEO's ownership increases. Thus, the economically most substantive measure of equity compensation is the interaction between valuation and ownership fraction, i.e., the variable *Implied Value of CEO Equity*. In Table 8 we therefore restrict the sample to the subset of observations where valuation data is available, and estimate regressions using *Implied Value of CEO Equity* as the dependent compensation variable. Regression 8.I – 8.IV show that the *Implied Value of CEO Equity* increases with maturity, operating performance and fundraising success. The coefficient on *Round Number* shows that the CEO increases the value of his ownership stake by 23% for each financing round. Further, a doubling of *Employees* is associated with a 66% increase in *Implied Value of CEO Equity* and a doubling of *Revenues* leads to an 11% increase. A doubling of *VC Financing Last Round* is associated with a 57% increase in *Implied Value of CEO Equity*. As shown in model 8.V, these results hold in the full multivariate specification where state and industry controls are included. In summary, improved operating performance and successful fundraising lead to a reliable increase in the dollar value of the CEO's equity ownership.

Taken together, our results on equity compensation show three things. First, even though successful fundraising leads to a dilution of the CEO's percentage ownership of the company, the dollar value of his/her ownership increases with successful fundraising. Second, the finding that the CEO's percentage ownership is primarily determined by fundraising events indicates that equity incentives may not be continuously adjusted to reflect the performance and maturity of the company. Third, the dollar value of the CEO's ownership is determined in a qualitatively similar way as cash compensation, i.e., increasing with operating performance and fundraising.

5.5 *Interrelations Between Cash and Equity Compensation*

Our results thus far indicate that CEO cash compensation is tied to various measures of operating performance and fundraising success. Thus cash compensation is similar to equity compensation in the sense that it provides incentives for the CEO to successfully grow the business. This naturally leads to the question of how the two compensation components are jointly determined. On one hand, if cash and equity incentives are substitutes we would expect that CEOs who receive more cash compensation receive less equity compensation. This hypothesis predicts that *Total Cash Compensation* and *% Equity Ownership* will have a negative correlation after controlling for company characteristics. Further, if the two compensation

components are governance substitutes (companies with stronger CEO equity incentives have less need for stronger CEO cash incentives), then the sensitivity of *Total Cash Compensation* to company performance should be higher for CEOs with low % *Equity Ownership* as compared with CEOs with high % *Equity Ownership*.

Alternatively, cash and equity compensation could be complementary governance tools if they address different aspects of the agency problem that exists between the CEO and VC investors. Companies with more severe agency problems will presumably need both greater equity incentives and greater cash incentives. This view predicts that the sensitivity of *Total Cash Compensation* to company performance will be lower for CEOs with low % *Equity Ownership* as compared with CEOs with high % *Equity Ownership*. Also, if some CEOs have stronger bargaining power than others, we would expect a positive correlation between *Total Cash Compensation* and % *Equity Ownership*.

We test these opposing views. Table 9 reports the results of regressions of *Total Cash Compensation* on % *Equity Ownership* and *Implied Value of Equity Ownership*. As shown in Model 9.I, the raw correlation between *Total Cash Compensation* and % *Equity Ownership* is negative but statistically insignificant. In model 9.II we estimate a multivariate specification that includes state and industry controls, together with firm maturity, company performance and fundraising success. In this multivariate specification, the partial correlation between *Total Cash Compensation* and % *Equity Ownership* is significantly positive. This result is illustrated in Figure 6, which plots *Total Cash Compensation* for different sample deciles of % *Equity Ownership*. In models 9.III and 9.IV we estimate the same regressions using *Implied Value of Equity Ownership* as the measure of equity compensation. Here we find that both the raw and partial correlations between *Total Cash Compensation* and *Implied Value of Equity Ownership* are significantly positive and significant. This result is illustrated in Figure 7, which shows *Total Cash Compensation* for different sample deciles of *Implied Value of Equity Ownership*. We see that *Total Cash Compensation* is increasing with *Implied Value of Equity Ownership*. From these findings we infer that CEOs that have higher equity compensation also have higher cash compensation. We interpret our results as being inconsistent with the hypothesis that cash and equity pay are substitutes, but supportive of the hypothesis that some CEOs have strong bargaining power.

Next we test whether CEOs with lower % *Equity Ownership* have stronger cash incentives. In model 9.V we include an interaction between % *Equity Ownership* and *Employees* and find that this interaction is positive. Similar results are obtained in model 9.VI where we interact % *Equity Ownership* with *Revenues*. These results indicate that cash and equity compensation are used as complementary governance solutions. Some companies have more significant agency problems and need to give the CEO higher cash compensation and a larger ownership fraction.

5.6 *Summary of Main Empirical Results*

We summarize our empirical findings so far as follows. [1] CEO cash compensation in private venture-backed firms is increasing in revenues and employees but not in profitability. [2] Cash compensation is also higher for companies that raise more VC financing, even when controlling for performance, growth and valuation, and for companies that receive financing from more experience VCs. [3] The sensitivity to fundraising success is higher for companies with strong operating performance (measured by revenues or employees) than for companies with weak operating performance. [4] While fundraising leads to a dilution of the CEO's percentage ownership of the company, the dollar value of the CEO's equity ownership increases with operating growth and fundraising success. [5] Lastly, the correlation between cash and equity compensation is reliably positive, and low equity ownership is associated with smaller pay-for-performance elasticities for cash compensation.

5.7 *Discussion of Main Empirical Results*

In our tests we find statistically significant differences in CEO compensation across private venture-backed firms. However, the elasticities involved are relatively modest. For example, while the revenue elasticity of cash compensation is 30% in public companies and 50% in private non-venture-backed firms (Baker, Jensen, and Murphy; 1988; Murphy, Zabojník, 2004; Cole and Mehran, 2007), in our sample of private venture-backed firms the revenue elasticity is a far smaller 5% (model 4.IV).

One explanation for this might be that CEOs in private venture-backed companies are compensated for additional dimensions of firm performance, such as employee growth and fundraising. However, the elasticities on these variables are also relatively small, measuring 7%

for *Employees*, 1% for *VC Financing Except Last Round* and 7% for *VC Financing Last Round* (model 5.VI). Another explanation, and the one we favor, is that the small pay elasticities stem from the fact that CEO cash compensation is relatively narrowly distributed in private venture-backed firms. As Figure 1 illustrates, 75% of CEOs earn total cash pay of between \$150,000 and \$350,000 a year. Table 3 further illustrates this by showing that the median CEO cash pay for a firm with revenues above \$20 million is only 28% greater than that of a firm with revenues of between \$0 and \$0.5 million. Similarly small spreads exist based on firm maturity, number of employees, and fundraising success. The narrowness in the distribution stems primarily from a low upper bound in that less than 1% (5%) of CEOs earn more than \$500,000 (\$400,000) of cash compensation. In sharp contrast, and as illustrated in Figure 3, the distribution of CEOs' equity ownership is much wider, with 75% of CEOs owning between 2% and 19% of firm equity.

Even though equity compensation is the largest portion of the economic value of CEO pay in private venture-backed companies, our results clearly indicate that cash compensation is determined by both *Revenues* and *Employees*. Both variables clearly measure operating growth but differ from cash flows and earnings by not being complete measures of corporate value. However, growth is arguably the most important corporate output from a VC's perspective. VCs want to exit via an IPO or acquisition within 5 to 7 years of making their investment, and the probability of achieving such a goal is typically increasing in realized and potential future growth in corporate revenues and human capital. Recent empirical work supportive of this argument is reported by Puri and Zarutskie (2007), who find that venture-backed companies initially grow their number of employees faster than non-VC-backed companies, and later also manifest faster revenue growth.

Our results also show that CEO cash compensation is higher in companies that have raised more VC financing in both the last round and in other previous rounds, even controlling for company characteristics, current and expected near-term operating performance, and post-money firm valuation. We interpret this as evidence that CEOs who are able to raise more VC financing are rewarded with higher cash compensation. Unlike CEOs of public companies, the CEOs of early stage companies face capital markets characterized by high search and transaction costs. They therefore have to spend considerable effort finding, convincing and contracting with prospective investors (despite this being an activity that many CEOs dislike). Moreover, not only it is harder for early stage private companies to raise capital but it is also more important.

The typical startup has negative free cash flows and will simply not be able to successfully grow towards a strong exit without regular injections of VC capital. On theoretical grounds, CEO compensation should also be tied to fundraising success because financing cash flows are unambiguously observed by VCs, whereas reported revenues, profits and even number of employees can be manipulated to some degree. And a financing round that includes a new investor also serves as a third party verification that the company is doing well.

We note, though, that there are alternative explanations for why CEO compensation might be positively associated with fundraising. First, prior to closing a financing round the CEO might rationally accept cash compensation below his or her reservation wage because the company is cash constrained, and to signal to VCs that he or she is committed to the firm's success. Then, when new equity is sold, CEO cash compensation adjusts upwards to the CEO's reservation wage. While we cannot rule out this explanation, it seems to us unlikely that CEOs who are about to raise *more* capital would "starve" themselves more than CEOs who are about to raise *less* capital. A second explanation to consider is that CEO compensation only reflects self dealing, in that a CEO who sets his own cash compensation would be able to "steal" more from investors the more successful he is at fundraising. However, our results are inconsistent with this possibility. If self dealing was the main explanation for the positive association between fundraising and cash compensation, we would not expect to see what we find in our empirical tests, namely that the elasticity on fundraising is higher when operating performance is weak.

5.8 *CEO Compensation and VC Governance*

While the main goal of our paper is to shed light on how and why top level compensation is determined in a key subset of private companies, we believe our findings expand what is known about the breadth and nature of the mechanisms that venture investors use to solve the agency problems they face. Based on our empirical findings that CEOs are paid for both operating performance and fundraising success we make two inferences about VC governance.

The first is that the structure of CEO compensation contracts in private venture-backed companies is more consistent with pay-for-performance or optimal contracting and less consistent with CEO self dealing or pay-for-power.¹⁶ Put differently, our analyses support the

¹⁶ This claim is not only supported by the findings that equity compensation is large, and cash compensation is tied to operating performance and fundraising success. We also find that cash compensation is higher for companies that

view that VCs have sufficient information, incentives, and voting power to actively determine the CEO's compensation. As a result, venture-capital backed companies do not suffer from the managerial power and rent extraction problems that some researchers have argued is present in public companies (Bebchuk, Fried and Walker, 2002; Bebchuk and Fried, 2003, 2004; Bebchuk and Grinstein, 2005). This is not surprising given that VCs hold concentrated ownership stakes, have significant voting power and are active members of the Board of Directors.

Our second inference is that despite the impressive array of governance mechanisms already in place at venture-backed firms (e.g. control of board, contingency-based financial contracts, and negative covenants), CEO compensation plays a significant role in solving agency problems. Specifically, our findings show that VCs link cash compensation to company performance even though the median CEO owns a relative large equity fraction. One reason for this could be that the overall agency problem in the type of firms backed by venture capital is so enormous that VCs have to use every governance tool available to them. Under this interpretation, compensation helps solve the overall agency problem because other governance mechanisms fail to (fully) achieve their objective.

An alternative reason for why performance-based cash compensation exists in venture-backed firms is that cash compensation tackles a dimension of the agency problem between investors and the CEO that other governance mechanisms conceptually *cannot* solve. For example, even if VCs control the board and can veto important decisions, the CEO retains considerable freedom to make decisions that are vital to how well and how fast the company grows, performs and survives. To some degree the same effect could be obtained by giving the CEO very large long-term cash flow incentives, e.g., an even larger equity ownership stake, requiring the vesting of options and shares, and convertible preferred stock used by VCs to allocate more cash flows to the CEOs if the company is sold for a higher price. However, long-term cash flow incentives have at least three conceptual disadvantages as compared to cash incentives. First, cash compensation is paid out yearly whereas long-term cash flows are paid only when the company is sold, is liquidated or goes public. Many CEOs in private venture-backed firms are replaced well before a liquidity event is realized (Hellman and Puri, 2002;

have raised money from more experienced VCs, i.e. for companies where the CEO has weaker bargaining power. Moreover, if compensation reflected pay-for-power then we would expect to observe that founder CEOs get higher cash compensation, because they are more informed and entrenched than non-founder CEOs. Our findings show the opposite.

Kaplan, Stromberg and Sensoy, 2007), or their equity ownership may get renegotiated or diluted. Knowing this, CEOs may assign a low value to their equity stake and instead value more their immediate, tangible and consumable cash compensation. Second, long term cash flows are tied to the final valuation of the company and work only as an effective incentive mechanism if the CEO understands how decisions in an early stage company in a new industry segment translates into final company valuation. With cash compensation, the VC can directly tie incentives to intermediate performance variables such as operating growth and fundraising. Finally, because the CEO is unable to sell or borrow against his long-term cash flow incentives, cash compensation may solve more intermediate agency problems because it directly affects the CEO's consumption level. CEOs of early stage companies are typically unable to sell or borrow against their equity ownership stake.

6. Empirical Results related to Founder CEOs

Thus far we have made no distinction between founder CEOs and non-founder CEOs. However, the distinction is likely to be important for early stage companies, because founder CEOs have been involved with the firm since inception and have strong emotional ties with the company. In contrast, non-founder CEOs tend to have more business experience (the main reason why they replace the founder as CEO) and view themselves more as executives than personal owners of the company. These distinctions should translate into differences in the level of compensation and the sensitivity of compensation to measures of company performance.

Wasserman (2006) compares the cash compensation given to founder executives and non-founder executives and finds that founder executives receive lower cash compensation.¹⁷ Our empirical tests confirm his results. Per Table 5 model VI, founder CEOs receive 18% less *Total Cash Compensation* than non-founder CEOs. While founder CEOs on average own 2.7 percentage points more fully diluted equity (model 7.V), we do not find that this difference translates into a statistically significant difference in the implied value of the equity (model 8.V). Wasserman interprets the differences in cash compensation levels between founder executives and non-founder executives as evidence of founders accepting lower salaries because they

¹⁷ The sample used in Wasserman's study is different our sample. His sample is collected by Ernst & Young, Hale and Dorr, and J. Robert Scott and covers the period 2000-2002. Our sample is collected by VentureOne and covers 2002-2006. Another difference is that Wasserman's sample includes both CEOs and non-CEOs, whereas our sample and only includes CEOs.

“because they identify closely with and gain non-material rewards from their ventures”. While such founder-specific utility is indeed one explanation to the lower cash compensation level for founders, an alternative is that founders have fewer outside options than non-founders.

Another finding in Wasserman (2006) is that founder executives have a higher sensitivity between cash compensation and operating growth, measured by the number of employees. We test whether this result also holds in our data. Table 10 shows the result of regressions identical to model 6.VI (*Total Cash Compensation* on operating performance and fundraising success) but where founder interactions terms are selectively included. Consistent with Wasserman, we find that founders have significantly higher elasticities on *Employees* (model 10.I), *Revenues* (10.II) and *VC Financing Last Round* (model 10.III). Per model 10.III, the elasticity on *Revenues* is small and only weakly significant for non-founder CEOs. In Wasserman’s view, the differences in cash compensation elasticities between founder executives and non-founder executives are evidence that founders are less affected by agency problems because they have stronger intrinsic motivation to improve the performance of their company (stewardship theory). An alternative explanation is that the agency problem is actually larger for founder CEOs so that their compensation contracts require stronger performance-based cash pay to be optimal.

Finally, we explore a new dimension on the difference between founder CEOs and non-founder CEOs. This is whether the result that the correlation between *Total Cash Compensation* and fundraising success is higher when operating performance is weak differs across founder and non-founder CEOs. To do this, we create a double interaction term where *VC Financing Last Round* is interacted both with *Employees* and *Founder*. As shown in model 10.IV, this interaction is positive and weakly significant. We create a similar double interaction term where *VC Financing Last Round* is interacted both with *Revenues* and *Founder*. Model 10.V indicates that this interaction too is positive and weakly significant. However, the magnitude is quite small. Although the coefficients are small, they suggest that founder CEOs must be incentivized to do fundraising even when operating performance is strong. This may reflect the difference in exit preferences of a company with strong operating performance—whereas a founder CEO wants to keep the company in its current form, a non-founder CEO and his/her VCs are more willing to bet on a homerun.

7. Supplementary Results

7.1 *Base Salary and Bonus Components of CEO Total Cash Compensation*

How and why are *Base Salary* and *Bonus*—the two major components of *CEO Total Cash Compensation*—associated with company performance and fundraising success? Table 11 analyzes the data through several regression models. Model 11.I estimates an OLS regression where the dependent variable is $\ln(1 + \text{Base Salary in \$000s})$, while Model 11.II estimates a Tobit regression where the dependent variable is $\ln(1 + \text{Bonus in \$000s})$. In the Tobit model, observations with $\text{Bonus} = 0$ are treated as-if they were left censored.¹⁸ In contrast to OLS, the estimates of the coefficients on the underlying latent explanatory variables in the Tobit model will be unbiased.¹⁹ However, while OLS coefficients measure the unconditional marginal effects of the independent variables, the coefficients on the latent explanatory variables in the Tobit model measure the conditional marginal effects. As a result, the magnitudes of the coefficient estimates obtained from the Tobit model can only be correctly interpreted if they are made unconditional. This is achieved by multiplying them by the average estimated probability that an observation will be interior, that is, the average estimated probability that $\text{Bonus} > 0$.

Since half of our sample CEO-year observations have $\text{Bonus} = 0$, we also examine whether the CEO receives *any* bonus and, conditional on receiving a bonus, the size of the bonus. Specifically, model 11.III shows the results of estimating a Probit regression where the dependent variable takes the value one if $\text{Bonus} > 0$ and zero otherwise, and model 11.IV is identical to model II—i.e., the dependent variable is $\ln(1 + \text{Bonus in \$000s})$ —but limits the sample to only observations where $\text{Bonus} > 0$.

From Table 11, we note the following. First, consistent with that cash compensation is contingent on performance, we find that most performance elasticities are markedly higher for *Bonus* pay than they are for *Base Salary* compensation. For example, comparing model 11.I with 11.II indicates that better operating performance in the form of a doubling of *Employees*

¹⁸ This addresses the natural boundedness of the dependent variable by treating both the expected level of *Bonus* conditional on having $\text{Bonus} > 0$, and the probability of $\text{Bonus} = 0$, as manifestations of a common underlying latent variable process. The latent variable is a purely technical device, because *Bonus* is not in actuality left-censored. Censoring occurs when a sampling or data collection process is such that the researcher cannot observe the full range of the population model. This is not the case for *Bonus* because we assume that negative bonus pay cannot be awarded to a CEO. When $\text{Bonus} = 0$, this reflects an economic choice by the company, not a deficiency in the data.

¹⁹ OLS assumes that the error term is unbounded by virtue of being normally distributed. This is not so, because *Bonus* cannot be negative. Parameter estimates obtained using OLS will therefore typically be biased toward zero as well as inconsistent.

(*Revenues*) increases the CEO's *Base Salary* by 6% (0.3%) but increases his or her *Bonus* by an average of 19% (20%). The main exception is that better financing performance in the form of a doubling of *VC Financing Last Round* increases *Base Salary* with 8% and *Bonus* with 0.5%.

Second, most of the generally larger performance elasticity of *Bonus* stems from the decision to grant a bonus, rather than the size of the bonus per se. We infer this from observing that the magnitudes of the estimated coefficients on operating and financing performance are larger and more statistically significant in model 11.III than they are in model 11.IV. For example, regression 11.III shows that a doubling of *Employees* increases the probability the CEO will receive a bonus by 5%, while regression 11.IV reveals that conditional on receiving a bonus, a doubling of *Employees* increases the magnitude of the bonus by a statistically insignificant 1%.

Third, we find that *Base Salary* and *Bonus* are both lower for founder CEOs. Relative to non-founder CEOs, founder CEOs receive 14% lower base salary, are 10% less likely to receive any bonus, and conditional on receiving a bonus receive a 6% lower amount of bonus. All these results are highly statistically significant. We also find that CEOs who are Chairman of the Board do not receive more base salary and are not more likely to receive a bonus. However, conditional on receiving a bonus, Chairman CEOs receive 7% higher bonus amount.

7.2 Industry Differences in CEO Total Cash Compensation

We explore whether and why company performance and fundraising elasticities on cash compensation differ across industry groups. Our motivation arises from the observation that while companies backed by venture capital are similar in that they invariably high risk endeavors that seek to convert new ideas into goods and services targeted at large markets, and tap the same pool of venture capital, they differ in the nature of their ideas and production functions. As such, we predict that optimal compensation contracts in venture-backed private companies will reflect both differences in the firms' intangible assets and production functions, as well as similarities in firms' financing sources. That is, we predict that the elasticity of CEO cash compensation with respect to operating performance will differ across venture-backed firms, but that the elasticity of CEO cash compensation with respect to financing performance will not differ. Within operating performance, we make two predictions.

First, we expect that the elasticity of CEO compensation with respect to *Employees* will be higher for firms in the Healthcare and Information Technology sectors than in the

Retail/Services sector, because the former rely on more specialized types of human capital than do the former. Second, we expect that the elasticity of CEO compensation with respect to *Revenues* will be least for Healthcare firms and greatest for Retail/Services firms. This is because the biotechnology companies that dominate the Healthcare sector do not focus on generating near-term revenues. Rather, their emphasis is on discovering new drugs and moving those drugs through the FDA pipeline. So for such firms, we do not expect the magnitude of revenues while they are private to increase the CEO's compensation. However, in contrast to this, firms in the Retail/Service sector tend to be much more focused on generating large and rapidly growing revenues because the underlying ideas that gave birth to them as companies rely far less on specialized human expertise and human capital.

Table 12 reports the results of OLS regressions that test these predictions by dividing the sample in firms in the Healthcare/Life Science sector (model 12.I), the Information/High Technology sector (model 12.II), and companies in the Retail/Services industry (model 12.III). The evidence shows that supports the proposition that operating performance is different for different industry sectors. We observe that as predicted, the elasticity of CEO compensation with respect to *Revenues* is least for Healthcare firms and greatest for Retail/Services firms. For the latter, the estimated elasticity is insignificantly different from zero, while for the former it is reliably positive, and larger than that for Information Technology companies.

The data is also weakly consistent with the prediction that the elasticity of CEO compensation with respect to *Employees* will be higher for firms in the Healthcare and Information Technology sectors than in the Retail/Services sector. In particular, the estimated elasticity of *Employees* is 7% for Information Technology and Healthcare companies and 5% for Retail/Services firms but the difference is not statistically significant. However, inconsistent with our prediction that financing performance elasticities should be similar across industry sectors we find industry differences. For all three industry groups, the coefficients on *VC Financing Last Round* are positive and significant. For firms in the Healthcare sector, a doubling of the financing amount is associated with a 12% increase in *CEO Total Cash Compensation*. The corresponding elasticity is 4% for companies in the Information Technology sector and 6% for companies in the Retail/Service sector, are also reliably positive.

Finally, in unreported tests we compared the levels of *CEO Total Cash Compensation*, after controlling for company performance and fundraising success., i.e., the estimated regression

intercept, for different industry sectors. We find that CEOs in the Healthcare/Life Science industry receive noticeably more cash compensation than CEOs in the Information Technology and Retail/Other sectors after controlling for company performance and fundraising success.

7.3 *Cash Compensation with Company Fixed Effects*

Finally, as robustness tests we estimate regressions of *CEO Total Cash Compensation* on performance and fundraising variables with firm fixed effects included. In theory, including firm fixed effects can remove the effect of omitted variables that affect both CEO compensation and performance, and it may provide a direct answer to the question “What happens with CEO compensation if revenues increase with variable X?”

The regression models shown in Table 13 indicate that the coefficients on *Round Number* and *Employees* retain their statistical significance. We interpret this being weakly consistent with the proposition that changes in company maturity and employee growth affect CEO compensation within a given company. However, due to problems with the fixed effect specification we do not interpret this result as evidence that changes in fundraising or revenue growth do not affect CEO compensation. This is because the firm fixed effects specification has weak statistical power in our setting because there are very few firms in our panel with multiple observations. Only 35 companies answered all five surveys in our sample, whereas 959 companies have answered only one survey. Moreover, VentureOne’s surveys report only intervals for revenues. Thus, while a company can in fact improve its revenues, those improvements may be too small to change the interval reported by the company. We do, however, find that the coefficient on *Profitability* is positive and significant in the models with company fixed effects. Thus cash compensation is higher for profitable companies when comparing within a given company, but not when comparing between companies.

8. Conclusions and Questions for Future Research

In this paper, we have used a large new dataset of the base salaries, bonuses and equity ownership of CEOs collected by VentureOne to study how CEOs in private venture-backed firms are compensated. Our main findings are that CEOs own relatively large equity fractions but also receive cash compensation that is tied to both operating performance and fundraising success. We interpret these results as evidence that VCs use compensation as a mechanism to

mitigate agency problems. Thus, even though VCs are active investors with strong control rights and even though VCs use complex financial instruments and long-term cash flow incentives, compensation is still used as a governance tool in such types of companies.

While our paper adds to the existing literature on how VCs impose governance structures on their portfolio companies, it leaves several questions unanswered. How and why does CEO compensation change with the type and intensity of VC ownership? How is compensation related to the hiring and firing of CEOs? Do companies with more VC-friendly deal terms give higher or lower compensation to their CEOs? To what degree and why are non-CEO employees compensated via equity and cash pay?

Our paper also adds to the literature on executive compensation by studying a previously unexplored sample of private companies that are important to the economy. We do not, however, explore how compensation is related to risks that follow from being the CEO of a private venture-backed company. Are CEOs adequately compensated for the risk that the company will fail? Finally, we do not study how non-CEO executives of private venture-backed companies are compensated. These are topics that we believe are deserving of academic attention.

References

- Baker, G., Jensen, M., and K. Murphy, 1988. Compensation and incentives: Practice vs. Theory. *Journal of Finance* 47, 593-616.
- Bebchuk, L., and J. Fried, 2003. Executive compensation as an agency problem. *Journal of Economic Perspectives* 17, 71-92.
- Bebchuk, L., and J. Fried, 2004. *Pay without performance: The unfulfilled promise of executive compensation*. Harvard University Press, Cambridge, MA.
- Bebchuk, L., Fried, J., and D. Walker, 2002. Managerial power and rent extraction in the design of executive compensation. *University of Chicago Law Review* 69, 751-846.
- Bebchuk, L., and Y. Grinstein, 2005. The growth of executive pay. *Oxford Review of Economic Policy* 231, 283-303.
- Bergemann, D., and U. Hege, 1998. Venture capital financing, moral hazard, and learning. *Journal of Banking & Finance* 22, 703-735.
- Bratton, W.W., 2002. Venture capital on the downside: Preferred stock and corporate control. *Michigan Law Review* 100 (5), 891-945.
- Canyon, M.J., and L. He, 2004. CEO compensation, incentives, and governance in new enterprise firms. *Journal of Derivatives Accounting*, 1, 47-60.
- Cole, R.A., and H. Mehran, 2007. What can we learn from privately held firms about executive compensation? Working paper, DePaul University.
- Gompers, P.A., and J. Lerner, 2000. *The Venture Capital Cycle*. The MIT Press, Cambridge, MA.
- Hall, B.J., and J.B. Liebman, 1998. Are CEOs really paid like bureaucrats? *Quarter Journal of Economics* 113, 653-691.
- Hand, J.R.M., 2006. Time to grow up: Large sample evidence on the maturation dynamics of private venture-backed firms. Working paper, UNC Chapel Hill.
- Hand, J.R.M., 2007. Give everyone a prize? Employee stock options in private venture-backed firms. Forthcoming, *Journal of Business Venturing*.
- Hellmann, T.F., 1998. The allocation of control rights in venture capital contracts. *RAND Journal of Economics* 29, 57-76.
- Hellman, T.F., 2000. *Venture capitalists: The coaches of Silicon Valley*. In W.F. Miller, M.G. Hancock and H.S. Rowen (eds.). *The Silicon Valley Edge: A Habitat for Innovation and Entrepreneurship*. Stanford, CA: Stanford University Press.
- Hellman, T.F., Puri, M., 2002. Venture capital and the professionalization of start-up firms: Empirical evidence. *Journal of Finance* 57, 169-198.
- Hochberg, Y., Ljungqvist, A., and Y. Lu, 2007. Whom you know matters: Venture capital networks and investment performance. *Journal of Finance* 62, 251-301.
- Holmström, B., 1979. Moral hazard and observability. *The Bell Journal of Economics* 10 (1), 74-91.

- Hsu, D., 2004. What do entrepreneurs pay for venture capital affiliation? *Journal of Finance* 59, 1805-1844.
- Irwin, J.R., and G.H. McClelland, 2003. Negative consequences of dichotomizing continuous predictor variables. *Journal of Marketing Research* 40, 366-371.
- Jensen, M., and K.J. Murphy, 1990. Performance pay and top management incentives. *Journal of Political Economy* 98, 225-264.
- Kaplan, S., Sensoy, B., and P. Strömberg, 2006. What are firms? Evolution from early business plan to public company. Working paper, University of Chicago.
- Kaplan, S., and P. Strömberg, 2003. Financial contracting theory meets the real world: Evidence from venture capital contracts. *Review of Economic Studies* 70, 281-316.
- Kaplan, S., and P. Strömberg, 2004. Characteristics, contracts, and actions: Evidence from venture capitalist analyses. *Journal of Finance* 59, 2177-2210.
- Lerner, J., 1995. Venture capitalists and the oversight of private firms. *Journal of Finance* 50, 301-318.
- Murphy, K.J., and J. Zábojník, 2004. CEO pay and appointments: A market-based explanation for recent trends. *American Economic Review Papers and Proceedings* 94, 192-196.
- National Venture Capital Association, 2006. Venture-backed IPO volume plummeted in Q3 2006.
- Petersen, M.A., 2007. Estimating standard errors in finance panel data sets: Comparing approaches. Working paper, Northwestern University.
- Puri, M., and R. Zarutskie, 2007. On the lifecycle dynamics of venture-capital- and non-venture-capital-financed firms. Working paper, Duke University.
- Seppä, T.J. 2003. Essays on the valuation and syndication of venture capital investments. Ph.D. dissertation, Helsinki University of Technology.
- Shivdasani, A., and D. Yermack, 1999. CEO involvement in the selection of new board members: An empirical analysis. *Journal of Finance* LIV, 1829-1853.
- Sorensen, M., 2007. Learning by investing: Evidence from venture capital. Working paper, University of Chicago.
- Thomas, R.S., Core, J.E., and W.R. Guay, 2005. Is U.S. CEO compensation broken? Working paper, University of Pennsylvania.
- Wasserman, N., 2006. Stewards, agents, and the founder discount: Executive compensation in new ventures. *Academy of Management Journal* 49, 5, 960-976.
- Wongsunwai, W., 2007. Does venture capitalist quality affect corporate governance? Working paper, Harvard Business School.
- Zingales, L., 1998. Corporate Governance, in Newman, P. (ed.) *The New Palgrave Dictionary of Economics and the Law*, London, Stockton Press, 497-502.
- Zingales, L., 2000. In search of new foundations. *Journal of Finance* LV, 1623-1653.

Figure 1

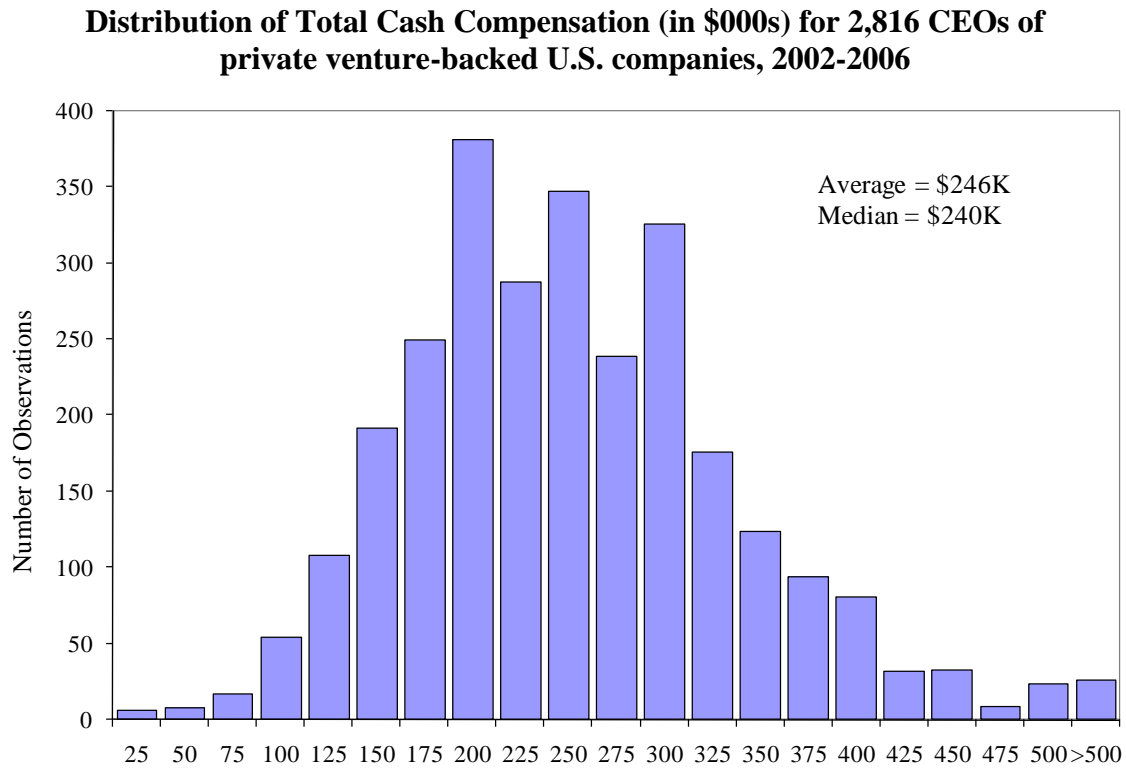


Figure 2

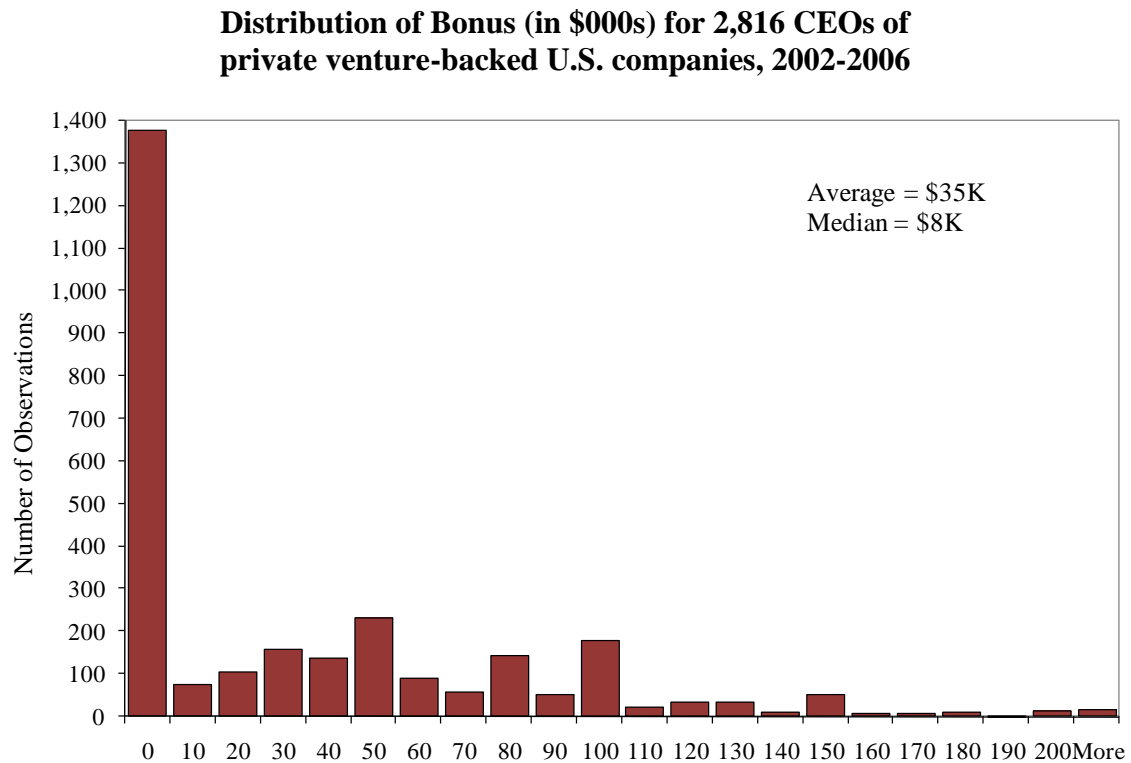


Figure 3

Distribution of Fraction of Equity Ownership (in percent) for 2,816 CEOs of private venture-backed U.S. companies, 2002-2006

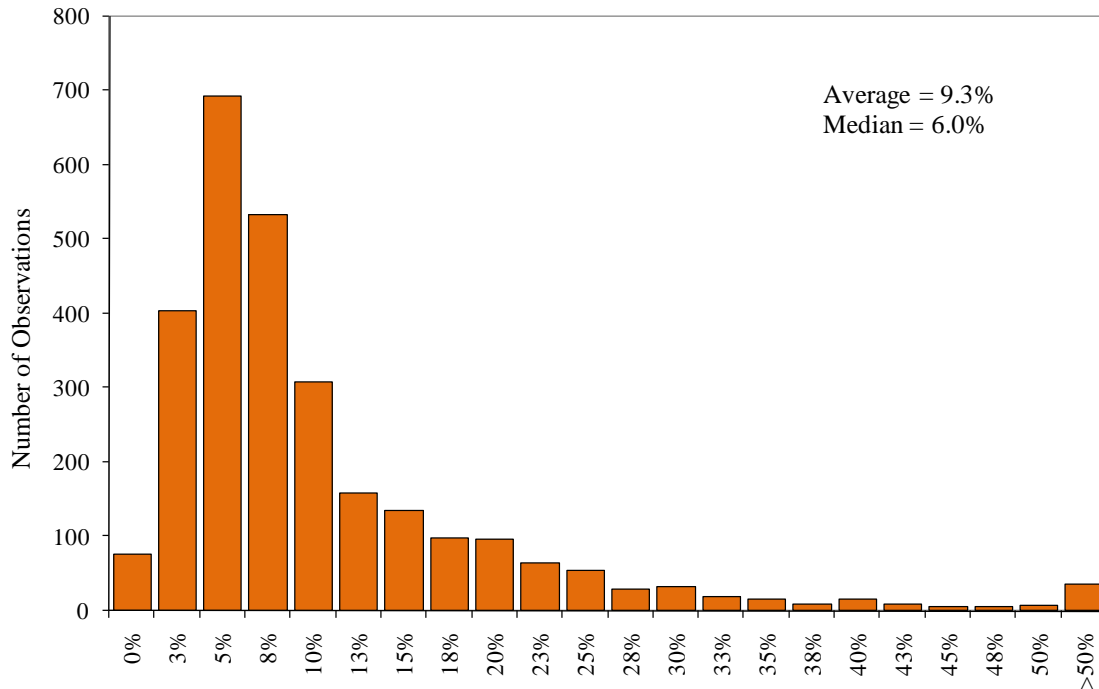


Figure 4

Distribution of Implied Value of Equity Ownership (in percent) for 2,816 CEOs of private venture-backed U.S. companies, 2002-2006

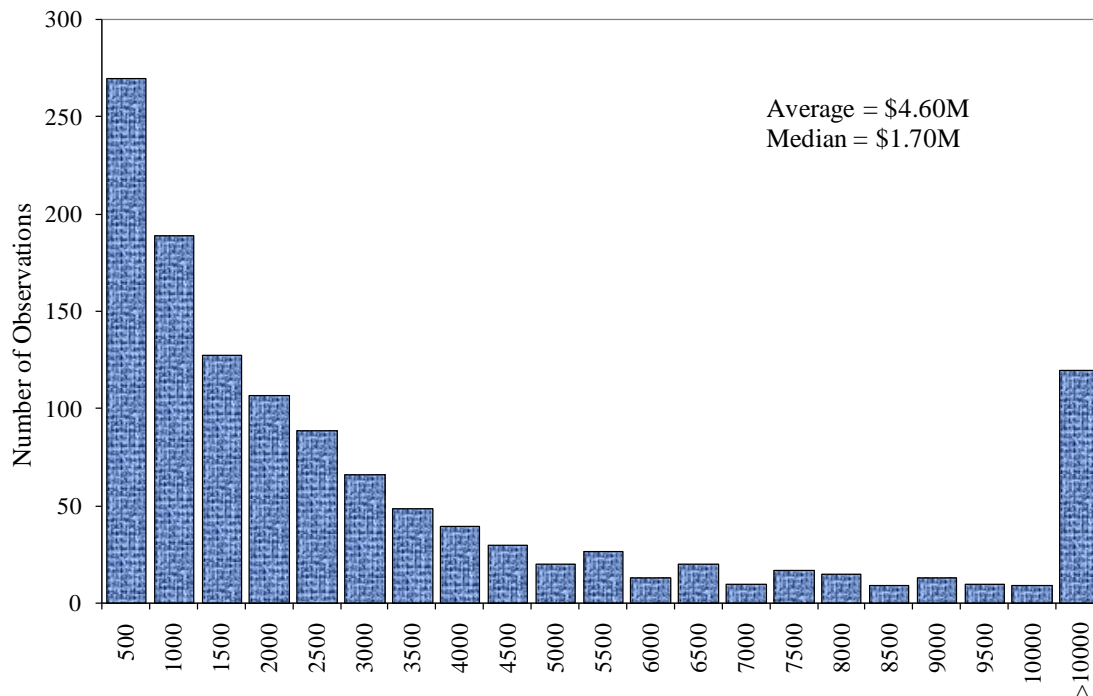


Figure 5

Mean Total Cash Compensation (in \$000s) for 2,816 CEOs of private venture-backed U.S. companies, 2002-2006, conditioning on performance as measured by Revenues and Financing Amount Raised in their Last VC Round

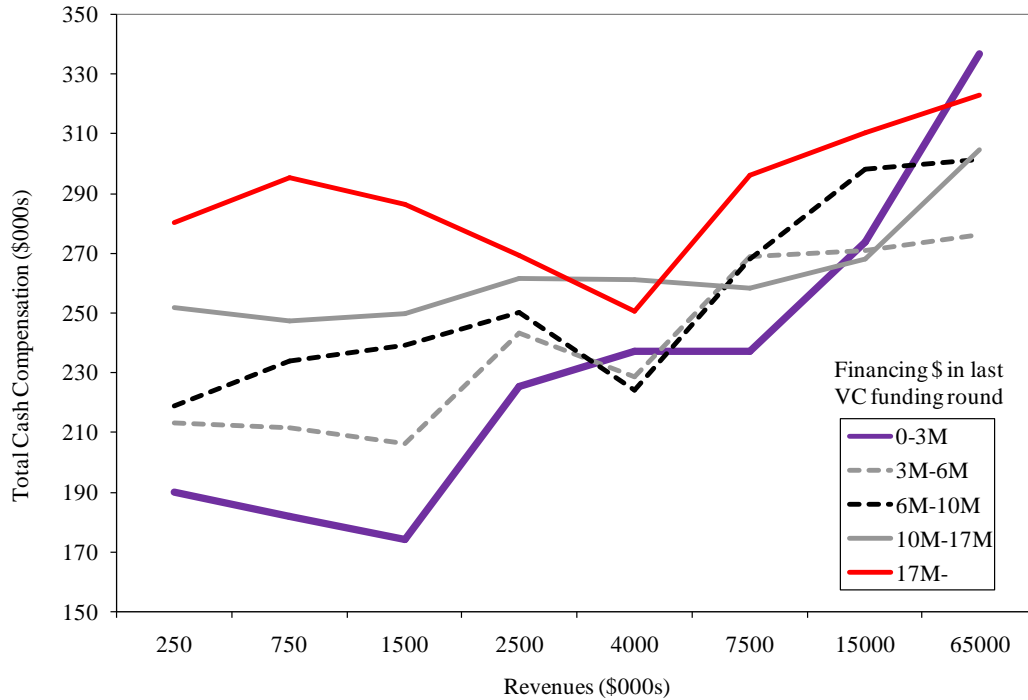


Figure 6

Mean Total Cash Compensation (in \$000s) for 2,816 CEOs of private venture-backed U.S. companies, 2002-2006, conditioning on Fraction of Equity Ownership held by CEO

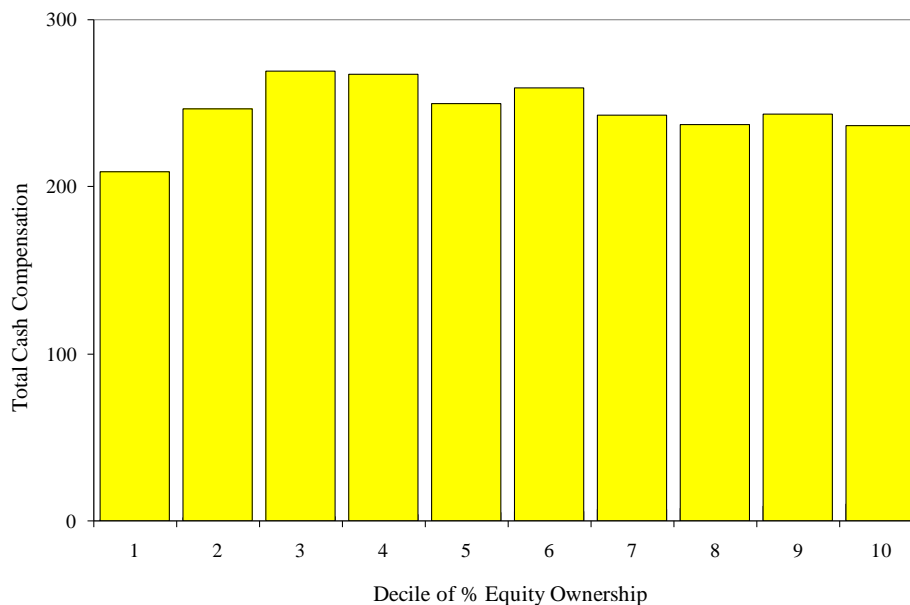


Figure 7

Mean Total Cash Compensation (in \$000s) for 1,252 CEOs of private venture-backed U.S. companies, 2002-2006, conditioning on Implied Value of CEO's Equity Ownership

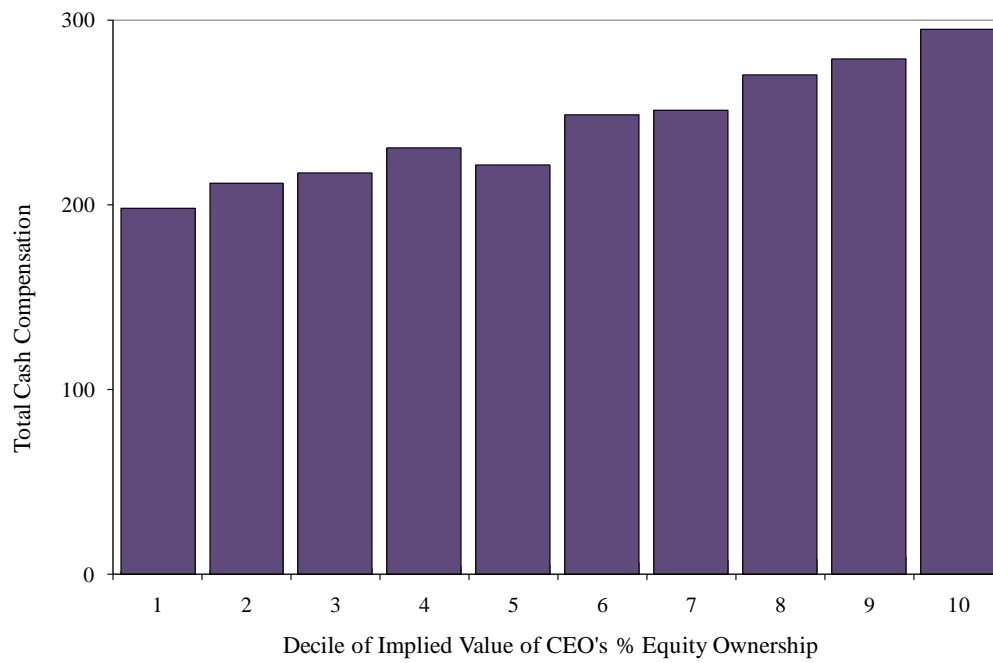


Table 1
CEO Sample Overview

Sample comes from surveys of venture-backed U.S. companies conducted by VentureOne from 2002-2006. Each survey asks the company to provide data on company performance and employee compensation. We limit our analysis to CEOs/presidents and keep only one survey per firm per year (starting from 2003, VentureOne sent out 2 surveys per year). We match our sample with data on company characteristics, VC ownership, and financing from VentureOne's financing and general support databases. Finally, we remove any observation with missing or obviously incorrect information. The final sample is a panel dataset with each observation being one individual/year pair. Panel A shows the steps of the sample filtering. Panel B tabulates the final sample by survey. Panel C tabulates the final sample by the number of individual executives per company/year (some companies list both President and CEO, and some list multiple CEOs).

Panel A - Sample Selection

	<u>Individuals</u>	<u>Companies</u>	
VentureOne Survey Data	61,005	2,975	
Keep CEOs / Presidents only	6,420	2,913	
Keep one Survey per Year	4,921	2,913	
Match with Company Characteristics	4,084	2,199	
Match with VC ownership	3,160	1,754	
Match with Round Financing data	2,983	1,656	
Remove observations with missing data	2,816	1,585	← Final sample
Remove observations with missing valuation data	1,252	755	← Subsample with valuation data

Panel B - Tabulation by Survey

<u>Year</u>	<u>Spring Survey</u>	<u>Fall Survey</u>	<u>Total</u>
2002	431	0	431
2003	327	0	327
2004	615	340	955
2005	392	197	589
2006	514	0	514
Total	2,279	537	2,816

Panel C - Tabulation by Number of Observations by Company/Year

<u>Observations by Company/Year</u>	<u>N</u>
1	2,155
2	586
3	54
4	16
5	5
Total	2,816
Unique company-years	2,471

Table 2
Descriptive Statistics

See Table 1 for description of sample. One observation is one individual/year pair, and total sample size is 2,816. Variables related to Company Operating Performance, CEO Characteristics and CEO Compensation come from VentureOne surveys. Total Compensation is the sum of Base Salary, Bonus, and Other Compensation. Employees in Previous Year is the median number of actual Employees for the range reported in the survey, and Revenues in Previous Year is the average value of the range reported in the survey. Dummy Profitable is reported in survey (but not actual profit number). Variables related to Company Financing Performance and Characteristics of Lead VC come from VentureOne's financing and general support databases, and refer to the situation of the company prior to filling out the survey. % Equity Ownership by VCs is calculated by dividing the number of preferred shares by the total number of common + preferred shares outstanding.

Panel A	Mean	Std. Dev.	Min.	Max.
<u>Company Operating Performance</u>				
Employees at end of previous year	39	37	6	131
Revenues in previous year (\$000s)	8,021	17,045	250	65,000
Dummy Employees higher in current year (1=yes, 0=no)	0.50	0.50	0	1
Dummy Revenues higher in current year (1=yes, 0=no)	0.57	0.49	0	1
Dummy Profitable (1=yes, 0=no)	0.06	0.24	0	1
Company start year	1998	3	1980	2005
Company age (years)	3.69	3.08	0	23
<u>Company Financing Performance</u>				
Year of company's first financing round	2000	3	1984	2005
Round number of last round	3.23	1.25	1	7
Post-money valuation of last round (\$000s)	47,594	72,192	500	1,069,200
VC financing previous rounds except last (\$000s)	12,422	21,970	0	320,280
VC financing last round (\$000s)	11,707	14,294	75	350,000
% Equity Ownership by VCs	64%	24%	0%	100%
Time between survey and last round (months)	21	19	0	171
<u>Characteristics of lead VC in last round</u>				
Age of lead VC (years)	9.33	7.57	0	25
Experience of lead VC (number of portfolio companies)	66	93	0	539
Dummy lead VC invested in previous round (1=yes, 0=no)	0.34	0.47	0	1
Panel B				
<u>CEO Compensation</u>				
Total cash compensation (\$000s)	246	90	12	800
Base salary (\$000s)	209	61	12	500
Bonus (\$000s)	35	49	0	600
Other compensation (\$000s)	2	13	0	250
Dummy Bonus (1=yes, 0=no)	0.51	0.50	0	1
% Equity ownership of CEO	9%	10%	0%	83%
Implied value of CEO's % equity ownership	4,632	12,460	0	260,000
Total cash comp / Implied value of CEO's % equity ownership	1.222	12	0	341
<u>CEO Characteristics</u>				
Dummy Founder (1=yes, 0=no)	0.43	0.50	0	1
Dummy Hired in prior 6 months (1=yes, 0=no)	0.05	0.22	0	1
Dummy Chairman of board (1=yes, 0=no)	0.05	0.21	0	1

Table 3

CEO Compensation, Ownership and Ownership Value by Key Firm Characteristics

See Table 1 for description of sample. Each observation is one individual/year pair, and total sample size is 2,816. All compensation variables come from VentureOne surveys and are reported in \$000s. Total Cash Compensation is the sum of Base Salary, Bonus, and Other Compensation. Reported statistics are sample means, with medians in parentheses. % Equity is calculated on a fully diluted basis. Implied value of % Equity is the product of % Equity and Post-money valuation of last round (variable only available for subset of sample).

	# obs.	Total Cash Compensation		Base Salary		Bonus		% Equity		Implied Value of % Equity	
<u>Round Number</u>											
1	66	189	(186)	164	(175)	26	(0)	10%	(7%)	405	(185)
2	852	221	(205)	194	(190)	25	(0)	11%	(7%)	2,258	(1,166)
3	903	243	(240)	206	(200)	35	(10)	9%	(6%)	4,016	(1,559)
4	582	269	(260)	225	(225)	42	(25)	8%	(5%)	7,427	(2,727)
5	256	281	(275)	232	(225)	47	(23)	8%	(5%)	8,401	(3,192)
6	103	287	(287)	242	(230)	44	(20)	7%	(4%)	8,451	(3,417)
7	54	280	(277)	224	(223)	50	(38)	9%	(5%)	5,022	(1,678)
<u>Revenues (\$)</u>											
0 - 0.5M	1,066	232	(225)	208	(200)	22	(0)	10%	(6%)	3,369	(1,568)
0.5M - 1M	217	224	(210)	195	(200)	27	(0)	10%	(6%)	2,614	(1,471)
1M - 2M	302	222	(205)	191	(200)	29	(0)	10%	(6%)	5,224	(1,368)
2M - 3M	184	247	(238)	201	(200)	44	(30)	8%	(6%)	3,003	(1,350)
3M - 5M	261	240	(235)	197	(200)	41	(25)	8%	(5%)	4,855	(1,730)
5M - 10M	332	266	(250)	220	(220)	43	(25)	10%	(7%)	7,073	(2,666)
10M - 20M	236	284	(290)	227	(224)	54	(48)	8%	(4%)	6,121	(1,864)
>20M	218	307	(290)	243	(239)	63	(50)	9%	(5%)	8,383	(2,751)
<u>Employees</u>											
0 - 10	385	202	(200)	183	(180)	17	(0)	10%	(7%)	1,321	(769)
10 - 20	518	215	(200)	190	(190)	24	(0)	11%	(7%)	2,650	(1,131)
20 - 30	465	239	(230)	204	(200)	32	(0)	9%	(6%)	3,113	(1,822)
30 - 40	324	250	(240)	212	(200)	36	(20)	9%	(6%)	3,481	(1,937)
40 - 50	261	259	(250)	222	(215)	35	(18)	8%	(5%)	4,459	(2,140)
50 - 60	210	269	(268)	224	(225)	43	(30)	8%	(5%)	10,378	(3,194)
60 - 100	324	280	(280)	231	(225)	48	(30)	9%	(5%)	6,895	(2,726)
>100	329	295	(285)	237	(225)	56	(50)	9%	(5%)	9,070	(3,114)
<u>Last Financing Amount (\$)</u>											
0 - 3M	626	210	(193)	178	(175)	30	(0)	11%	(7%)	1,253	(566)
3M - 6M	585	236	(225)	196	(200)	38	(25)	10%	(7%)	3,653	(1,117)
6M - 10M	500	240	(230)	207	(200)	32	(0)	9%	(6%)	2,573	(1,350)
10M - 17M	546	259	(250)	223	(225)	35	(6)	8%	(5%)	4,008	(2,098)
>17M	559	290	(280)	248	(247)	39	(10)	8%	(5%)	9,865	(4,232)
<u>Year</u>											
2002	431	239	(225)	201	(200)	36	(0)	13%	(11%)	6,050	(3,066)
2003	327	253	(240)	210	(200)	40	(10)	16%	(13%)	10,271	(3,499)
2004	955	238	(230)	207	(200)	29	(0)	7%	(5%)	3,290	(1,232)
2005	589	246	(240)	210	(200)	34	(18)	8%	(5%)	2,641	(1,274)
2006	514	261	(250)	219	(220)	40	(25)	7%	(5%)	2,526	(1,177)
<u>Industry</u>											
Healthcare/Biotechnology	806	264	(260)	232	(234)	30	(10)	9%	(5%)	3,656	(1,827)
Information Technology	1,475	237	(225)	199	(200)	35	(0)	10%	(6%)	5,569	(1,801)
Retail/Services + Other	535	245	(225)	203	(200)	40	(19)	9%	(6%)	4,235	(1,239)

Table 4

CEO Total Cash Compensation on Proxies for Company Operating Performance

*See Table 1 for description of sample. Each observation is one individual/year pair. Dependent variable is log of 1 + CEO Total Cash Compensation (defined as the sum of Base Salary, Bonus, and Other Compensation, in \$000s). Standard errors are clustered by company. T-stats are in square brackets. Two-tailed test significance are marked with * for 10%, ** for 5% and *** for 1%.*

Dependent variable: Model:	ln (1 + CEO Total Cash Compensation)				
	4.I	4.II	4.III	4.IV	4.V
Round number of most recent VC financing (1 to 7)	0.079 [10.2]***				0.045 [5.6]***
ln(1 + Company age in years)		0.230 [7.9]***			
ln (1 + #Employees at end of previous year)			0.151 [14.2]***		0.142 [9.6]***
ln (1 + Revenues in previous year in \$000s)				0.051 [10.2]***	-0.006 [-0.9]
Dummy Profitable (1=yes, 0=no)				-0.038 [-1.0]	-0.023 [-0.6]
Dummy Employees higher in current year (1=yes, 0=no)					0.075 [4.4]***
Dummy Revenues higher in current year (1=yes, 0=no)					-0.082 [-4.9]***
Constant	5.16 [157]***	5.24 [186]***	4.90 [117]***	5.05 [121]***	4.84 [94]***
# obs.	2,816	2,816	2,816	2,816	2,816
Adj. R-squared	0.07	0.04	0.12	0.06	0.15
Year controls	Yes	Yes	Yes	Yes	Yes
State controls	No	No	No	No	No
Industry controls	No	No	No	No	No

Table 5

CEO Total Cash Compensation on Proxies for Company Fundraising Success

See Table 1 for description of sample. Each observation is one individual/year pair. Dependent variable is log of 1 + CEO Total Cash Compensation (defined as the sum of Base Salary, Bonus, and Other Compensation, in \$000s). Standard errors are clustered by company. T-stats are in square brackets. Two-tailed test significance are marked with * for 10%, ** for 5% and *** for 1%

Dependent variable: Model:	ln (1 + CEO Total Cash Compensation)					
	5.I	5.II	5.III	5.IV	5.V	5.VI
Round number of most recent VC financing (1 to 7)		0.003 [0.3]	0.004 [0.5]	-0.003 [-0.3]		0.003 [0.3]
ln (1 + #Employees at end of previous year)		0.074 [5.3]***	0.086 [5.9]***	0.091 [4.2]***		0.072 [5.2]***
ln (1 + Revenues in previous year in \$000s)		0.019 [2.8]***	0.017 [2.5]**	0.013 [1.4]		0.020 [3.1]***
Dummy Profitable (1=yes, 0=no)		0.056 [1.5]	0.053 [1.5]	0.066 [1.5]		0.058 [1.6]
ln (1 + VC financing except last round in \$000s)	0.017 [8.3]***	0.006 [2.5]**	0.006 [2.5]**	0.003 [0.9]	0.016 [8.3]***	0.006 [2.5]**
ln (1 + VC financing raised in last round in \$000s)	0.103 [11.3]***	0.074 [7.4]***	0.072 [7.2]***	0.098 [4.9]***	0.099 [10.5]***	0.071 [6.9]***
Dummy Employees higher in current year (1=yes, 0=no)			0.057 [3.5]***	0.049 [2.3]**		
Dummy Revenues higher in current year (1=yes, 0=no)			-0.031 [-1.9]*	-0.025 [-1.2]		
Post-money valuation of last round (\$000s)				0.004 [0.2]		
Experience of lead VC (# companies)					0.012 [2.1]**	0.016 [3.0]***
Dummy Founder (1=yes, 0=no)		-0.180 [-10.8]***	-0.180 [-10.9]***	-0.136 [-6.1]***		-0.180 [-10.9]***
Dummy Hired in last 6 months (1=yes, 0=no)		0.029 [1.0]	0.026 [0.9]	0.023 [0.4]		0.027 [0.9]
Chairman of Board (1=yes, 0=no)		0.051 [1.0]	0.053 [1.0]	0.094 [2.6]***		0.05 [1.0]
Constant	4.38 [52]***	4.11 [33]***	4.12 [34]***	3.96 [26]***	4.38 [52]***	4.09 [33]***
# obs.	2,816	2,816	2,816	1,252	2,816	2,816
Adj. R-squared	0.16	0.32	0.32	0.42	0.17	0.32
Sample	Full	Full	Full	Valid data	Full	Full
Year controls	Yes	Yes	Yes	Yes	Yes	Yes
State controls	No	Yes	Yes	Yes	No	Yes

Table 6

CEO Total Cash Compensation on Operating/Fundraising Interactions

See Table 1 for description of sample. Each observation is one individual/year pair. Dependent variable is log of 1 + CEO Total Cash Compensation (defined as the sum of Base Salary, Bonus, and Other Compensation, in \$000s). Standard errors are clustered by company. T-stats are in square brackets. Two-tailed test significance are marked with * for 10%, ** for 5% and *** for 1%

Dependent variable: Model:	ln (1 + CEO Total Cash Compensation)			
	6.I	6.II	6.III	6.IV
Round number of most recent VC financing (1 to 7)	0.003 [0.3]	0.002 [0.2]	0.003 [0.4]	0.003 [0.3]
ln (1 + #Employees at end of previous year)	0.064 [4.5]***	0.311 [3.9]***	0.07 [5.0]***	0.073 [5.3]***
ln (1 + Revenues in previous year in \$000s)	0.158 [3.4]***	0.022 [3.3]***	0.021 [3.1]***	0.02 [3.0]***
Dummy Profitable (1=yes, 0=no)	0.037 [1.1]	0.043 [1.2]	0.381 [1.0]	0.052 [1.4]
ln (1 + VC financing except last round in \$000s)	0.005 [2.3]**	0.006 [2.5]**	0.006 [2.4]**	0.035 [2.2]**
ln (1 + VC financing raised in last round in \$000s)	0.180 [4.8]***	0.158 [5.1]***	0.073 [7.1]***	0.090 [6.3]***
(1 + VC financing raised in last round in \$000s) X ln (1 + revenues in previous year in \$000s)	-0.015 [-3.0]***			
(1 + VC financing raised in last round in \$000s) X ln (1 + #employees at end of previous year)		-0.027 [-3.1]***		
(1 + VC financing raised in last round in \$000s) X Dummy Profitable (1=yes, 0=no)			-0.039 [-0.9]	
(1 + VC financing raised in last round in \$000s) X (1 + VC financing raised except last round)				-0.003 [-1.8]*
Experience of lead VC (# companies)	0.016 [3.0]***	0.016 [3.0]***	0.016 [3.0]***	0.015 [2.9]***
Dummy Founder (1=yes, 0=no)	-0.179 [-10.9]***	-0.178 [-10.7]***	-0.181 [-11.0]***	-0.178 [-10.7]***
Dummy Hired in last 6 months (1=yes, 0=no)	0.027 [0.9]	0.028 [0.9]	0.029 [1.0]	0.027 [0.9]
Chairman of Board (1=yes, 0=no)	0.058 [1.2]	0.053 [1.1]	0.052 [1.1]	0.05 [1.0]
# obs.	2,816	2,816	2,816	2,816
Adj. R-squared	0.33	0.33	0.32	0.33
Sample	Full	Full	Full	Full
Year controls	Yes	Yes	Yes	Yes
State controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes

Table 7
CEO Equity as a Fraction of Fully Diluted Firm Equity on Company Operating Performance and Fundraising Success

*See Table 1 for description of sample. One observation is one individual/year pair. Dependent variable is the fraction of fully diluted firm equity held by the CEO in the form of common stock and stock options (whether vested or unvested). Standard errors are clustered by company. T-stats in square brackets. Significance marked with * for 10%, ** for 5% and *** for 1%*

Dependent variable: Model:	CEO Equity as a Fraction of Fully Diluted Firm Equity				
	7.I	7.II	7.III	7.IV	7.V
Round number of most recent VC financing (1 to 7)	-0.010 [-6.0]***				-0.002 [-1.1]
ln (1 + #Employees at end of previous year)		-0.008 [-2.9]***			-0.003 [-0.9]
ln (1 + Revenues in previous year in \$000s)			-0.002 [-1.7]*		0.001 [0.5]
Dummy Profitable (1=yes, 0=no)			0.035 [2.2]**		0.018 [1.4]
ln (1 + VC financing except last round in \$000s)				-0.003 [-5.0]***	-0.002 [-2.6]***
ln (1 + VC financing raised in last round in \$000s)				-0.009 [-3.9]***	-0.007 [-2.8]***
Experience of lead VC (# companies)					0.001 [0.6]
Dummy Founder (1=yes, 0=no)					0.027 [6.2]***
Dummy Hired in last 6 months (1=yes, 0=no)					-0.012 [-2.0]**
Chairman of Board (1=yes, 0=no)					0.015 [1.4]
Constant	0.16 [19]***	0.16 [14]***	0.15 [14]***	0.22 [11]***	0.18 [6.1]***
# obs.	2,816	2,816	2,816	2,816	2,816
Adj. R-squared	0.11	0.10	0.1	0.12	0.20
Sample	Full	Full	Full	Full	Full
Year controls	Yes	Yes	Yes	Yes	Yes
State controls	No	No	No	No	Yes
Industry controls	No	No	No	No	Yes

Table 8

CEO Implied Ownership Value on Operating Performance and Fundraising Success

*See Table 1 for description of sample. One observation is one individual/year pair. Dependent variable is the implied value of the fully diluted firm equity held by the CEO, defined as product of the fraction of fully diluted equity held by the CEO (see Table 7) and the firm's post-money valuation at its most recent financing round (where available). Standard errors are clustered by company. T-stats in square brackets. Significance marked with * for 10%, ** for 5% and *** for 1%*

Dependent variable: Model:	ln(1 + Implied Value of CEO Equity in \$000s)				
	8.I	8.II	8.III	8.IV	8.V
Round number of most recent VC financing (1 to 7)	0.37 [6.6]***				0.23 [3.7]***
ln (1 + #Employees at end of previous year)		0.61 [8.0]***			0.30 [2.6]***
ln (1 + Revenues in previous year in \$000s)			0.16 [4.1]***		-0.013 [-0.3]
Dummy Profitable (1=yes, 0=no)			-0.71 [-2.4]**		0.014 [0.1]
ln (1 + VC financing except last round in \$000s)				0.047 [3.4]***	-0.024 [-1.2]
ln (1 + VC financing raised in last round in \$000s)				0.57 [9.8]***	0.48 [6.6]***
Experience of lead VC (# companies)					-0.015 [-0.4]
Dummy Founder (1=yes, 0=no)					-0.12 [-1.0]
Dummy Hired in last 6 months (1=yes, 0=no)					-0.28 [-1.6]
Chairman of Board (1=yes, 0=no)					0.41 [2.1]**
Constant	6.16 [25]***	5.26 [17]***	6.25 [20]***	1.79 [3.3]***	1.83 [2.0]**
# obs.	1,252	1,252	1,252	1,252	1,252
Adj. R-squared	0.09	0.11	0.06	0.18	0.26
Sample	Valid data	Valid data	Valid data	Valid data	Valid data
Year controls	Yes	Yes	Yes	Yes	Yes
State controls	No	No	No	No	Yes
Industry controls	No	No	No	No	Yes

Table 9

**CEO Total Cash Compensation on Operating Performance and Fundraising Success,
and CEO Equity Compensation**

See Table 1 for description of sample. Each observation is one individual/year pair. Dependent variable is log of 1 + CEO Total Cash Compensation (defined as the sum of Base Salary, Bonus, and Other Compensation, in \$000s). Standard errors are clustered by company. T-stats are in square brackets. Two-tailed test significance are marked with * for 10%, ** for 5% and *** for 1%.

Dependent variable: Model:	ln (1 + CEO Total Cash Compensation)					
	9.I	9.II	9.III	9.IV	9.V	9.VI
Round number of most recent VC financing (1 to 7)		0.003 [0.4]		-0.008 [-0.7]	0.004 [0.4]	0.004 [0.5]
ln (1 + #Employees at end of previous year)		0.073 [5.3]***		0.076 [3.7]***	0.048 [3.0]***	0.072 [5.2]***
ln (1 + Revenues in previous year in \$000s)		0.020 [3.0]***		0.014 [1.6]	0.021 [3.1]***	0.009 [1.1]**
Dummy Profitable (1=yes, 0=no)		0.053 [1.5]		0.071 [1.6]	0.051 [1.4]	0.049 [1.4]
ln (1 + VC financing except last round in \$000s)		0.006 [2.7]***		0.004 [1.1]	0.006 [2.7]***	0.006 [2.7]***
ln (1 + VC financing raised in last round in \$000s)		0.073 [7.1]***		0.092 [6.0]***	0.072 [7.1]***	0.073 [7.1]***
Experience of lead VC (# companies)		0.016 [3.0]***		0.006 [0.9]	0.016 [3.0]***	0.016 [3.0]***
Dummy Founder (1=yes, 0=no)		-0.188 [-11.4]***		-0.133 [-6.1]***	-0.187 [-11.4]***	-0.188 [-11.5]***
Dummy Hired in last 6 months (1=yes, 0=no)		0.030 [1.0]		0.027 [0.5]	0.030 [1.0]	0.030 [1.0]
Chairman of Board (1=yes, 0=no)		0.046 [0.9]		0.084 [2.3]**	0.045 [0.9]	0.045 [0.9]
% Equity Ownership of CEO	-0.15 [-1.4]	0.28 [3.1]***			-0.55 [1.6]	-0.67 [1.7]*
Implied Value of CEO's % Equity Ownership			0.058 [9.0]***	0.018 [3.0]***		
% Equity Ownership of CEO X ln (1 + #Employees at end of previous year)					0.25 [2.5]***	
% Equity Ownership of CEO X ln (1 + Revenues in previous year in \$000s)						0.13 [2.4]***
# obs.	2.816	2.816	1,252	1,252	2.816	2.816
Adj. R-squared	0.01	0.33	0.09	0.42	0.33	0.33
Sample	Full	Full	Valid data	Valid data	Full	Full
Year controls	Yes	Yes	Yes	Yes	Yes	Yes
State controls	No	Yes	No	Yes	Yes	Yes
Industry controls	No	Yes	No	Yes	Yes	Yes

Table 10

**CEO Total Cash Compensation for Founders vs. Non-Founders
on Company Performance and Fundraising Success**

*See Table 1 for description of sample. Each observation is one individual/year pair. Dependent variable is log of 1 + CEO Total Cash Compensation (defined as the sum of Base Salary, Bonus, and Other Compensation, in \$000s). Standard errors are clustered by company. T-stats are in square brackets. Two-tailed test significance are marked with * for 10%, ** for 5% and *** for 1%.*

Dependent variable: Model:	ln (1 + CEO Total Cash Compensation)				
	10.I	10.II	10.III	10.IV	10.V
Round number of most recent VC financing (1 to 7)	0.003 [0.4]	0.004 [0.5]	0.002 [0.2]	0.003 [0.3]	0.004 [0.4]
ln (1 + #Employees at end of previous year)	0.056 [3.4]***	0.07 [5.1]***	0.071 [5.1]***	0.303 [3.8]***	0.062 [4.4]***
ln (1 + Revenues in previous year in \$000s)	0.020 [3.1]***	0.012 [1.7]*	0.020 [3.0]***	0.022 [3.3]***	0.153 [3.3]***
Dummy Profitable (1=yes, 0=no)	0.056 [1.6]	0.056 [1.6]	0.061 [1.7]*	0.044 [1.2]	0.038 [1.1]
ln (1 + VC financing except last round in \$000s)	0.006 [2.3]**	0.005 [2.3]**	0.006 [2.4]**	0.006 [2.4]**	0.005 [2.1]**
ln (1 + VC financing raised in last round in \$000s)	0.071 [6.9]***	0.071 [6.9]***	0.058 [4.9]***	0.156 [5.0]***	0.176 [4.8]***
Experience of lead VC (# companies)	0.016 [3.0]***	0.016 [3.0]***	0.016 [3.0]***	0.016 [3.0]***	0.016 [3.0]***
Dummy Founder (1=yes, 0=no)	-0.289 [-4.7]***	-0.319 [-4.9]***	-0.445 [-2.8]***	-0.268 [-4.9]***	-0.306 [-5.1]***
Dummy Hired in last 6 months (1=yes, 0=no)	0.022 [0.7]	0.022 [0.7]	0.023 [0.8]	0.022 [0.8]	0.021 [0.7]
Chairman of Board (1=yes, 0=no)	0.051 [1.0]	0.052 [1.1]	0.048 [1.0]	0.052 [1.1]	0.058 [1.2]
Founder X ln (1 + #employees at end of previous year)	0.033 [1.9]*				
Founder X ln (1 + revenues in previous year in \$000s)		0.019 [2.1]**			
(1 + VC financing raised in last round in \$000s) X ln (1 + #Employees at end of previous year)				-0.028 [-3.1]***	
(1 + VC financing raised in last round in \$000s) X ln (1 + Revenues in previous year in \$000s)					-0.015 [-3.1]***
Founder X ln (1 + VC financing raised in last round in \$000s) X ln (1 + Revenues in previous year in \$000s)			0.030 [1.7]*		
Founder X (1 + VC financing raised in last round in \$000s)					0.002 [2.2]**
Founder X (1 + VC financing raised in last round in \$000s) X ln (1 + #Employees at end of previous year)				0.003 [1.8]*	
# obs.	2,816	2,816	2,816	2,816	2,816
Adj. R-squared	0.33	0.33	0.33	0.33	0.33
Sample	Full	Full	Full	Full	Full
Year controls	Yes	Yes	Yes	Yes	Yes
State controls	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes

Table 11

CEO Base Salary vs. Bonus on Company Performance and Fundraising Success

See Table 1 for description of sample. One observation is one individual/year pair, and total sample size is 2,816. Regressions are OLS except specification III which is probit. Dependent variable in specification I is log of 1 + Base Salary (in \$000s), in specification II log of 1 + Bonus, in specification III a dummy equal to 1 if bonus was paid out and zero otherwise, and in specification IV log of 1 + Bonus when sample is restricted to observations where Bonus > 0. Standard errors are clustered by company. T-stats in square brackets. Significance marked with * for 10%, ** for 5% and *** for 1%.

Dependent variable is $\ln(1 + X)$, where X is: Model:	Base salary	Bonus	D(Bonus)	Bonus > 0
	11.I	11.II	11.III	11.IV
Round number of most recent VC financing (1 to 7)	0.008 [1.1]	-0.091 [-1.8]*	-0.026 [-1.9]*	-0.005 [-0.9]
$\ln(1 + \# \text{Employees at end of previous year})$	0.063 [5.5]***	0.189 [2.2]**	0.047 [2.0]**	0.013 [1.4]
$\ln(1 + \text{Revenues in previous year in } \$000\text{s})$	0.003 [0.5]	0.203 [5.1]***	0.051 [4.6]***	0.009 [1.8]*
Dummy Profitable (1=yes, 0=no)	0.029 [1.1]	0.415 [2.0]*	0.131 [2.2]**	0.002 [0.1]
$\ln(1 + \text{VC financing except last round in } \$000\text{s})$	0.003 [1.4]	0.046 [3.3]***	0.012 [3.1]***	0.004 [2.1]**
$\ln(1 + \text{VC financing raised in last round in } \$000\text{s})$	0.076 [8.7]***	0.005 [0.1]	-0.005 [-0.3]	0.010 [1.8]*
Experience of lead VC (# companies)	0.017 [3.9]***	-0.004 [-0.1]	-0.002 [-0.3]	0.001 [0.4]
Dummy Founder (1=yes, 0=no)	-0.139 [-10.4]***	-0.478 [-5.2]***	-0.098 [-4.0]***	-0.061 [-5.0]***
Dummy Hired in last 6 months (1=yes, 0=no)	0.025 [1.0]	0.002 [0.0]	-0.006 [-0.1]	0.010 [0.4]
Chairman of Board (1=yes, 0=no)	0.028 [0.7]	0.075 [0.3]	-0.032 [-0.5]	0.065 [3.3]***
Constant	4.09 [30]***	-0.49 [-0.7]		1.18 [8.5]***
# obs.	2,816	2,816	2,816	1,438
Adj. R-squared	0.35	0.16	0.11	0.18
Sample	Full	Full	Full	Bonus > 0
Year controls	Yes	Yes	Yes	Yes
State controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes

Table 12

**CEO Total Cash Compensation on Company Performance
and Fundraising Success by Major Industry Sector**

*See Table 1 for description of sample. Each observation is one individual/year pair. Dependent variable is log of 1 + CEO Total Cash Compensation (defined as the sum of Base Salary, Bonus, and Other Compensation, in \$000s). Standard errors are clustered by company. T-stats are in square brackets. Two-tailed test significance are marked with * for 10%, ** for 5% and *** for 1%.*

	Dependent variable is: ln (1 + CEO Total Cash Compensation)		
	Model:		
	12.I Healthcare	12.II Info. Tech.	12.III Other
Round number of most recent VC financing (1 to 7)	-0.006 [-0.4]	0.005 [0.4]	0.012 [0.7]
ln (1 + #Employees at end of previous year)	0.073 [3.1]***	0.071 [4.0]***	0.052 [1.4]
ln (1 + Revenues in previous year in \$000s)	-0.007 [-0.7]	0.030 [3.5]***	0.048 [2.6]**
Dummy Profitable (1=yes, 0=no)	0.054 [0.8]	0.056 [1.2]	0.004 [0.1]
ln (1 + VC financing except last round in \$000s)	0.005 [1.2]	0.006 [1.8]*	0.003 [0.4]
ln (1 + VC financing raised in last round in \$000s)	0.117 [7.0]***	0.036 [2.8]***	0.056 [2.3]**
Experience of lead VC (# companies)	0.006 [0.7]	0.019 [2.7]***	0.030 [2.2]**
Dummy Founder (1=yes, 0=no)	-0.092 [-3.1]***	-0.253 [-11.8]***	-0.155 [-3.7]***
Dummy Hired in last 6 months (1=yes, 0=no)	0.071 [1.2]	0.014 [0.4]	-0.032 [-0.3]
Chairman of Board (1=yes, 0=no)	0.044 [0.7]	0.012 [0.1]	0.241 [2.0]**
Constant	4.21 [23]***	4.95 [49]***	4.00 [20]***
# obs.	806	1,475	535
Adj. R-squared	0.36	0.34	0.36
Year controls	Yes	Yes	Yes
State controls	Yes	Yes	Yes

Table 13

CEO Total Cash Compensation on Proxies for Company Operating Performance and Fundraising Success (firm fixed effects included on restricted sample)

*See Table 1 for description of sample. One observation is one individual/year pair, but the sample is restricted to firms with two or more observations. Dependent variable is log of 1 + CEO Total Cash Compensation (defined as the sum of Base Salary, Bonus, and Other Compensation, in \$000s). Standard errors are clustered by company. T-stats are in square brackets. Two-tailed test significance are marked with * for 10%, ** for 5% and *** for 1%.*

Dependent variable: Model:	ln (1 + CEO Total Cash Compensation)				
	4.I	4.II	4.III	4.IV	4.V
Round number of most recent VC financing (1 to 7)	0.077 [4.1]***	0.070 [3.7]***	0.071 [3.8]***	0.074 [3.9]***	0.06 [3.1]***
ln (1 + #Employees at end of previous year)		0.045 [2.4]**			0.039 [2.0]**
ln (1 + Revenues in previous year in \$000s)	0.007 [0.7]				0.001 [0.1]
Dummy Profitable (1=yes, 0=no)			0.20 [2.6]***		0.19 [2.6]**
ln (1 + VC financing except last round in \$000s)					
ln (1 + VC financing raised in last round in \$000s)				0.019 [1.4]	0.016 [1.2]
Constant	5.10 [68]***	5.03 [71]***	5.15 [102]***	4.99 [42]***	4.91 [36]***
# obs.	1,512	1,512	1,512	1,512	1,512
Adj. R-squared	0.14	0.14	0.14	0.14	0.15
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes	Yes
State controls	No	No	No	No	No
Industry controls	No	No	No	No	No