Deviations from Contractual Priority in the Sale of VC-Backed Firms

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Abstract

The literature on venture capital contracting implicitly assumes that VCs' cash flow rights – including their liquidation preferences – are fully respected. Using a hand-collected dataset of Silicon Valley firms sold in 2003 and 2004, this paper is the first to document that common shareholders often receive payment before VCs' liquidation preferences are satisfied. We show these carveouts are larger when governance arrangements give common shareholders more power to impede the sale. Our study shows how VCs' control rights and cash flow rights interact to affect VCs' cash flow outcomes, and contributes to a better understanding of VC exits.

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1. Introduction

The securities design literature, starting with Jensen and Meckling (1976), emphasizes the importance of cash flow rights in reducing agency costs in the firm (Myers, 1977; Jensen, 1986; Harris and Raviv, 1991). Insights from this literature have been used to explain the structure of venture capitalists' cash flow rights. VCs typically invest through convertible preferred stock (Kaplan and Strömberg, 2003; Sahlman, 1990), which entitles the VCs to be paid before common shareholders – the founders and other employees – when the firm is sold or dissolved (Barclay and Smith, 1995). These liquidation preferences are believed to mitigate information asymmetry as well as improve the entrepreneur's incentive to generate value (Sahlman, 1990).

Implicit in much of the financial contracting literature, and the VC contracting literature in particular, is the assumption that cash flow rights are reliable: the investor will receive her contracted-for, state-contingent payout. But there is no evidence that VCs contractual priority rights over common shareholders are in fact fully respected. And there is reason to suspect they may not be. Creditors, like VCs holding preferred stock, enjoy contractual priority over common shareholders. Yet equityholders of financially distressed firms can sometimes use their holdup power to extract part of creditors' cash flow rights, causing a deviation from contractual priority.[1] To the extent

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[1] Studies finding deviations in creditors' contractual priority in bankruptcy proceedings include: Warner (1977), Franks and Torous (1989), Weiss (1990), LoPucki and Whitford (1990), Eberhart, Moore and Roenfeldt (1990), Franks and Torous (1994), Betker (1995), and Tashjian, Lease and McConnell (1996). Studies also find significant deviations from contractual priority in informal workouts negotiated outside of bankruptcy (e.g., Franks and Torous, 1994). Subsequent work has explained that these deviations result from equity's holdup power - the legal right of equityholders in Chapter 11 to delay or prevent the adoption

common shareholders in a VC-backed firm have holdup power, they may similarly use that power to "renegotiate" the parties' cash flow rights.

The academic literature appears to assume that common shareholders have little power in the later stages of a VC-backed startup's life. VCs obtain substantial control rights in the form of contractual provisions, board seats, and shareholder voting rights (Kaplan and Strömberg, 2003). These rights are believed to give VCs sufficient control to unilaterally bring about a sale of the firm (Black and Gilson, 1998; Smith, 2005), which would in turn trigger their liquidation preferences.

However, common shareholders do have several sources of holdup power that they can use to impede these sales, which would often pay them little if VCs' preferences were fully respected. The first source of power is common stockholders' representatives on the board. As a matter of corporate law, a sale or other major transaction usually requires approval by a majority of the board. When the VCs lack board control, they cannot push through a transaction unless at least one other director consents. This, in turn, may enable common shareholders' representatives to block an unfavorable transaction.

Second, common shareholders may have some holdup power by virtue of their relationship with the CEO. The CEO has considerable power within the firm (Rajan and Zingales 1998). Even when VCs control a majority of the board, they may find it difficult to effect a sale without the CEO's full cooperation. In some cases, the CEO may wish to

of a plan of reorganization (Bebchuk and Chang, 1992; Bebchuk, 2002). By contrast, bankruptcy distributions in jurisdictions, such as the United Kingdom, that do not provide equity with similar holdup power are generally consistent with creditors' priority rights (Franks, Nyborg, and Torous, 1996; Franks and Sussman, 2005; Davydenko and Franks, 2006)

use her positional power to extract a larger payment for common shareholders as a class. For example, when the CEO is one of the original founders, she may want long-time employees, friends and family investors, and co-founders no longer working for the firm to receive something for their common stock.

Third, common shareholders may use their voting rights and their ability to threaten fiduciary duty litigation under corporate law to try to block a preference-triggering transaction. The strength of these rights depends on the state in which the firm is incorporated. The stronger are these rights, the more leverage common shareholders have vis-à-vis the VCs. We conjecture that common shareholders may use some or all of these three sources of holdup power to extract a "carveout" of the VCs' preferences in exchange for allowing the transaction to go forward.

Surprisingly, the performance of VCs' liquidation preferences has not been well studied. Although cash flow *rights* in VC contracts are widely studied (e.g., Kaplan and Strömberg, 2003), little is known about cash flow *outcomes* – how the proceeds of the sale of VC-backed firms are actually allocated. Are VCs' liquidation preferences in fact fully respected? Or can common shareholders use their holdup power to obtain part of VCs' cash flow rights? If so, what are the most important sources of common shareholder holdup power?

To answer these questions, we use a hand-collected database of 42 VC-backed Silicon Valley companies that were eventually sold. We gather data on board composition, the CEO, the state of incorporation, and VCs' cash flow rights from the initial VC financing to the eventual sale of the company. We then document the

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allocation of the sale proceeds among the VCs and common shareholders. We can thus compare VCs' cash flow rights at the time of sale to the amounts they actually receive.

We find that in a majority of sales, VCs are able to receive the full amount of their cash flow rights. However, they receive less than their contractual entitlement in over 25% of transactions. The average carveout in these cases is $3.7 million, approximately 11% of the VCs' contractual payout rights. In aggregate, the VCs in our sample give up approximately 2-3% of their cash flow rights to common shareholders.

We also show that the likelihood and magnitude of deviations from contractual priority are larger when VCs have less power vis-à-vis common shareholders. Deviations favoring common shareholders are more likely to occur and larger when VCs lack board control: everything else equal, the expected carveout for common shareholders in our sample is about $2 million larger when VCs do not have a board majority. When the selling CEO is not a professional hired by the VCs but rather a founder (and therefore more likely to use his positional power to assist common stockholders), the expected carveout to common shareholders in our sample is approximately $1.5 million larger. Finally, the expected carveout to common shareholders, everything else equal, is roughly $1.75 million higher when state corporate law gives common shareholders relatively more leverage.

The allocation of control rights within our sample firms is contractually determined and thus not exogenous, raising the possibility of omitted variable bias. To address this concern we estimate the sensitivity of our results to omitted variable bias using a technique developed by Altonji, Elder, and Taber (2005). This technique utilizes the insight that the amount of selection of a potentially endogenous treatment on the other

observed explanatory variables in a model can serve as a guide to the amount of correlation between the treatment and unobserved variables. Application of their technique to our study suggests that the relationship between common shareholder power and carveout payments is not spurious. For example, to invalidate the effect of board control on carveouts, omitted variables would need to explain approximately 5.6 times the variation in board control as can be explained by our included variables. Following Altonji, Elder, and Taber (2005) we consider this possibility to be highly unlikely.

Most generally, our study contributes to the literature on financial contracting. Inherent in much of the financial contracting literature is an assumption, often implicit, that cash flow rights are reliable: the investor will receive her contracted-for, state-contingent payout (Jensen and Meckling, 1976; Myers, 1977; Jensen, 1986; Harris and Raviv, 1991). Researchers have identified one setting in which cash flow rights are not perfectly reliable: bankruptcy. Our study provides further evidence that cash flow rights do not perfectly predict cash flow outcomes. It thus provides additional empirical support for incomplete contracting theory's claim that cash-flow rights, while very important, may be unreliable if their holder lacks sufficient control (Hart, 1995; Williamson, 1985; Tirole, 1999; Aghion and Bolton, 1992).

Our study also makes several contributions to the literature on venture capital investing. First, it demonstrates how VC control and cash flow rights interact to affect VCs' cash flow outcomes. Researchers have carefully documented VC control and cash flow rights and shown that the relationship between them can be explained by financial contracting theories (Kaplan and Strömberg, 2003). However, our study is the first to document that VC control rights actually affect the performance of their cash flow rights.

Second, we contribute to a better understanding of *VC exits*. Researchers have extensively studied VC exits through IPOs (Barry et al, 1990; Megginson and Weiss, 1991; Lee and Wahal, 2004; Gompers, 1996), but little is known about how VCs exit through private sales, even though they are the most frequent form of VC exit (Cumming et al., 2006). It is often assumed that VCs have sufficient control to determine the method and timing of exit (Black and Gilson, 1998; Smith, 2005). Our study sheds some light on the dynamics of VC sale exits and suggests that, contrary to this assumption, VCs do not always have sufficient control to dictate the terms of exit, and must sometimes give up part of their cash flow rights when they wish to exit through a sale.

Third, our study is the first to demonstrate that the choice of corporate law may matter in startups. There is some evidence suggesting that, within the U.S., state corporate law affects value of common stock in *public* companies (Daines, 2001; Subramanian, 2004), and that cross-country differences in corporate law protection affect the value of common shares (e.g., La Porta et al, 2002). However, we are unaware of any research showing that corporate law also affects financial outcomes in startups or indeed in any type of *private* companies.

Fourth, our paper highlights the potentially important role of common shareholders in late-stage governance of VC-backed firms. The literature on VC contracting focuses primarily on the relationship between the VCs and the entrepreneurs seeking their funding. It demonstrates that cash-flow and control rights in VC financing agreements respond to asymmetric information and agency problems in the relationship between two parties: the VCs and the (entrepreneur) manager, who may initially be the main (or even) only common shareholder. (Sahlman, 1990; Gompers and Lerner, 1999;

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Klausner and Litvak, 2001; Kaplan and Strömberg, 2003). As time goes on, however, the common shareholder class grows to include not only the entrepreneur- manager (or his successor) but also employees, former employees, and founders who have left management. Little attention has been paid to the separate interests and incentives of these common shareholders as a class.

Our study suggests that the distinct interests and incentives of common shareholders several years into the startup life could play an important role in corporate decision-making (such as whether the firm is sold) and the allocation of firm value among participants in the later stages of a startup. The fact that common shareholders can affect corporate decisionmaking in VC-backed firms also suggests that VC contracting may be designed not only to control entrepreneur agency costs but also to appropriately constrain common shareholders' holdup power. For example, the allocation of board seats in VC financing arrangements may be structured not only to allow the VCs to monitor the startup's managers but also to enable the VCs to exit without sharing too much of their liquidation preferences with common shareholders.

The remainder of this paper is organized as follows. Section 2 describes the potential conflict between preferred-owning VCs and common shareholders when a sale of the firm is contemplated. It also develops testable hypotheses regarding the effect of common shareholders power on the VCs' ability to fully realize their liquidation preferences in a sale. Section 3 describes our dataset. Section 4 describes the deviations from contractual priority observed in our sample. Section 5 tests ours hypotheses regarding deviation from priority, describes our findings, and offers robustness checks.

Section 6 explains why the parties may find it desirable ex ante to give common shareholders *some* holdup power in the startup. Section 7 concludes.

2. VCs and Common Shareholders

VC-backed startups typically issue two classes of stock: common and convertible preferred. The common is held by the founders, employees, and in some cases angel investors (including friends and family of the founders). The convertible preferred is mostly held by VCs, who invest in startups almost exclusively through this type of security (Kaplan and Strömberg, 2003).

2.1. VCs' Use of Preferred Stock

Convertible preferred stock has two key features. First, in a liquidity event – the sale or dissolution of the company – a preferred stockholder is entitled to be paid the full amount of the stock's liquidation preference, before common shareholders receive anything. The liquidation preference usually equals the amount invested (a "1x" preference) but can be a multiple of that amount. Second, the preferred stockholder can choose to convert the preferred stock into common at a pre-specified ratio. Upon conversion, liquidation preferences and any other rights associated with the preferred stock are eliminated.

A VC holding preferred stock will choose to convert into common stock only if the company is sold for a sufficiently high price. [2] If the firm is sold in an IPO meeting

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[2] VCs' convertible preferred stock sometimes includes "participation rights." Such participating preferred stock entitles holders not only to a liquidation preference but also to share with common shareholders, on a

certain conditions, the financing agreement may require the VCs to convert to common even if the preferred stock would offer a higher payout. In merger exits, on the other hand, conversion is generally not required. VCs typically elect, consistent with their financial interest, to keep their preferred stock and receive their liquidation preferences rather than convert to common (Cumming et al., 2006).

Researchers have offered various explanations for VCs' extensive use of convertible preferred stock with liquidation preferences. By giving the VCs preferred stock with liquidation preferences, an entrepreneur can credibly signal that the company is worth more than the liquidation preferences, mitigating information asymmetry (Sahlman, 1990). The use of preferred stock may also provide founders with desirable incentives by providing a payout only if the company does very well, and conferring tax advantages on the startup (Sahlman, 1990; Gilson and Schizer, 2003).

2.2. Common and Preferred Shareholders' Diverging Interests

Because common shareholders and preferred shareholders have different cash flow rights, their interests in how the startup is run can diverge (Fried and Ganor, 2006). In certain states of the world, VCs' liquidation preferences give them debt-like cash flow rights, while making common shareholders somewhat analogous to option holders. Preferred-holding VCs may prefer less risky strategies than common shareholders.

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pro-rata basis, in any additional value available for distribution to shareholders, usually up to a specified amount (say, three times the original investment). Thus, the VCs will convert their preferred shares into common stock only if the amount they would receive as common stockholders exceeds the sum of their liquidation preference plus the value of their participation rights. Our discussion here assumes, for ease of exposition, that the VCs hold nonparticipating preferred stock.

Neither class of shareholder will always favor the strategy that maximizes total shareholder value

A sale of the startup is one scenario in which the interests of common and preferred shareholders can radically diverge (Fried and Ganor, 2006). Preferred shareholders obtain an immediate and certain payoff associated with the sale, much of which they will capture through their liquidation preferences. Common shareholders, on the other hand, may receive little if anything for their stock and be forced to give up their equity's option value. Preferred shareholders may thus favor a sale that common shareholders oppose.

2.3. VC Control Rights

VCs typically receive extensive control rights in their portfolio companies (Kaplan and Strömberg, 2003). First, protective provisions give VCs the right to veto certain major transactions, such as the sale of company's assets. Second, staged financing – the ability to withhold cash – gives VCs substantial influence over corporate decision-making (Gompers, 1995). Third, VCs frequently acquire a majority of seats on the board, either immediately or during a subsequent round of financing. The first two forms of control – protective provisions and staged financing – only give VCs the power to block transactions unfavorable to them. In contrast, the third – board control – gives them the critical ability to replace management as well as *initiate* fundamental transactions that benefit them such as mergers, IPOs, and liquidations (Fried and Ganor, 2006).

The literature on VC contracting offers various explanations for VCs control rights, especially board control. First, VC control of the board can reduce entrepreneur

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agency costs by allowing VCs to monitor the entrepreneur and fire her if necessary (Lerner, 1995; Gompers, 1995; Hellmann, 1998). Second, control helps VCs liquidate their investment within the investment time frame dictated by the VCs' contract with their own investors (Kaplan and Strömberg, 2003). Among other things, control rights make it easier for VCs to sell a firm over the objection of common shareholders (Fried and Ganor, 2006; Smith, 2005).

2.4. *Common Shareholders' Holdup Power and its Limits*

Although preferred-owning VCs have substantial control rights, their ability to effect a liquidity event over the objection of common shareholders is not absolute. Common shareholders often have the ability to impede such a transaction. And they may use this power to force preferred shareholders to give up some of their liquidation preferences during the liquidity event. We describe three sources of common shareholder holdup power, and offer a hypothesis about how each source of power should affect common shareholders' ability to capture some of the VCs' liquidation preferences.

2.4.1. Board Seats

A sale of the company requires approval by a majority of the directors. The allocation of board seats is determined contractually in connection with each round of financing, with board representation often decoupled from cash flow rights (Kaplan and Strömberg, 2003). Board seats are typically divided among the VCs, representatives of the common shareholders, and so-called "independent directors" mutually appointed by the common shareholders and the VCs.

When VCs lack a majority of the board seats, they must obtain the cooperation of other directors to sell the company. For instance, if common shareholder representatives and independent directors constitute at least half the board, the VCs must convince at least one non-VC director to vote for the sale. To persuade non-VC directors to support such a sale, the VCs might be required to give up a portion of their liquidation preferences to common shareholders. On the other hand, if VCs control a majority of the board, they could unilaterally vote to authorize the sale. Thus we predict that, everything else equal, when VCs lack a board majority the expected deviation from contractual priority is larger. We refer to this as the *Board blocking Hypothesis.*

2.4.2. Shareholder Rights

A second potential source of common shareholder holdup power vis-à-vis VCs comes from corporate law. Common shareholders may have power both through their right to vote and their ability to bring a derivative suit to enforce the board's fiduciary duties to shareholders. These rights are provided by the law of the state in which the startup is incorporated.

(1) Voting rights. Corporate law requires that shareholders approve by majority vote certain so-called "structural" or "organic" changes that substantially alter their investment interest. This generally includes any sale or merger of the company. Common shareholders' ability to use voting rights to impede a sale will depend on the voting rules provided by the corporate law governing the firm.

In some states, transactions can be approved by holders of a majority of all the firm's outstanding stock, both preferred and common. VC financing arrangements typically allow the VCs to vote their preferred shares together with common stockholders

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when such stockholder-wide votes are permitted (Smith, 2005). After multiple rounds of financing, preferred shareholders' voting power typically exceeds that of the common shareholders, enabling preferred shareholders to dictate the outcome of such a vote (Kaplan and Strömberg, 2003). Under such a rule, common shareholders thus have little power through their voting rights.

Other states require a separate vote for each class of shareholders, including common. In such jurisdictions, common shareholders may be able to impede a sale they oppose. However, VCs have developed various techniques for neutralizing common shareholders' votes. For example, VCs can convert some of their preferred into common or use corporate funds to buy common shareholders' votes (Fried and Ganor, 2006). Thus, separate class voting does not give common shareholders absolute veto power. Nevertheless, to the extent the VCs must incur costs to neutralize common shareholders' voting power, separate voting does give common shareholders more leverage over the VCs than a rule permitting all shareholders to vote together.

(2) Fiduciary duties. The directors of the startup, like those of any other corporation, are considered to owe a fiduciary duty of loyalty to the corporation and its shareholders. Among other things, the duty of loyalty prohibits a director from taking actions -- such as self-dealing or taking a corporate opportunity -- that would benefit him personally or a controlling shareholder at the expense of shareholders as a group.

Fiduciary duties are enforced through shareholder litigation. Common shareholders can legally challenge the terms of a sale approved by a preferred-controlled board as a violation of its fiduciary duty. Directors will thus wish to structure the

allocation of payouts in a way that reduces the probability of a suit, and the likelihood that any filed suit will succeed.

We predict that incorporation in any jurisdiction that provides greater legal protection to common shareholders through voting rights or fiduciary duty law will lead to greater deviations from contractual priority. We refer to this as the *Shareholder Rights Hypothesis*.

2.4.3. Founder CEO

A third possible source of power for common shareholders is their relationship with the CEO. Formally, CEO consent is not legally required to sell a company. But because of incomplete contracting the CEO has considerable power with the firm (Rajan and Zingales, 1998) that she can use to impede the sale of the firm. The CEO may use her positional power to benefit herself personally. For example, the CEO may demand a bonus payment for completion of the sale.

But if the CEO is the founder, she may also use her power for the benefit of the common shareholders. A founder CEO is likely to feel loyalty or some degree of obligation to those who own common shares – the startup's employees, other founders, and early angel investors, including friends and family, who showed confidence in the founder. As one of the entrepreneurs providing us with data said, there is a "social contract" between the founder CEO and the common stockholders. Moreover, a founder CEO is likely to hold significant amounts of common stock, and thus have financial interests more closely aligned with common shareholders.

In contrast, if the CEO at the time of sale is not the founder but a professional executive put in place by the VCs, she is less likely to use her holdup power for the benefit of common shareholders. First, she may feel less social connection to common shareholders, and be more loyal to the VCs who put her in place. Second, she is likely to hold less common stock than a founder CEO. We predict a greater deviation from contractual priority if the selling CEO is one of the founders. We refer to this as the *Founder CEO Hypothesis.*

3. The Data

To conduct this study, we use a unique hand-collected data set of VC-backed Silicon Valley firms. This section describes the data collection process and provides descriptive statistics, including the cash-flow rights and governance characteristics of the companies in our sample.

3.1. Data Gathering

We obtained from VentureReporter.net a list of startup companies located in California that were sold to an acquirer in 2003 or 2004. The original list included firms located in southern California and some companies that did not receive venture financing. These companies were filtered out, leaving a sample of 193 VC-backed companies

located in and around San Francisco, San Jose, and Oakland (broadly defined as "Silicon Valley").[3]

For each firm we sought to locate and obtain company data from one or more persons knowledgeable about the company's financings and the sale of the company. We identified current business addresses for the founders or executives (all of whom we call "entrepreneurs" for convenience) of 141 of the 193 companies. We mailed letters asking entrepreneurs from each firm to provide us with data. We promised to keep the information confidential so that those reading our study would not know the identity of the entrepreneur or the startup firm. We made follow-up phone calls to encourage participation approximately two weeks after the letter was sent out.

Entrepreneurs from 57 of the 141 firms agreed to provide us with data – a response rate of 40.4%. The information obtained covered the entire lifespan of the startup company: from founding to sale. Among the data gathered were the state of incorporation, cash-flow rights and control rights negotiated in each VC financing round, the identities and backgrounds of the CEO and directors, and the terms of the sale, including the amounts paid to various classes of shareholders. Data was also obtained from the firms' corporate charters – which often contain information about the parties' cash flow and control rights.

From the original set of 57 companies, we removed six for lack of sufficient data or because they turned out not to meet our criteria, leaving 51 companies. In nine of these

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[3] We used LinkSV to filter out companies which did not meet these criteria <www.linksv.com>. LinkSV profiles all companies located in the greater San Francisco/San Jose/Oakland bay area that received VC funding. Companies that did not appear on LinkSV were removed from our sample.

51 firms, the preferred stockholders had converted into common stock in connection with the sale, giving up their liquidation preferences. Because in such transactions contractual priority is eliminated and therefore deviations from contractual priority cannot occur, we removed these nine firms from our sample.[4] We were left with a relevant sample of 42 companies that had both preferred and common stock outstanding at the time of the sale.

3.2. Selection Issues

We define our sample based on an end event – the sale of the company, the most common form of VC exit. We focus on sales because that is where contractual priority is most commonly implicated and thus where the effect of VC control on their ability to realize their cash flow rights is most easily tested.[5] However, there may be other ways in which control affects VCs' cash flow rights. For example, common shareholders may be able to use their holdup power not only to extract value from VCs when the firm is sold but also to keep companies independent that the VCs would prefer to sell.[6] We look only

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[4] In each of these nine firms, the VCs converted into common because the payout from conversion was higher than the payout they would receive as preferred shareholders. The conversion was thus not an implicit deviation from contractual priority.

[5] The two other forms of exit are IPOs and dissolutions. In IPOs preferred stock converts into common, thus removing the liquidation preferences and eliminating the issue of contractual priority. Unlike IPOs, dissolutions could in principle involve deviations from contractual priority. However, failed startups that have no value to an acquirer are likely to have little or no value to distribute in a dissolution. Common shareholders also have little leverage over the VCs in this situation. Thus, dissolutions are unlikely to implicate contractual priority in any significant way.

[6] Control might also indirectly affect VC cash flow rights through its effect on the form of exit. In certain situations, a merger exit may allow the VCs to retain their liquidation preferences while the IPO would

at firms where the VCs have enough power to compel a sale. Thus, our results may understate the effect of VC control on their ability to realize their cash flow rights.

Our sample is limited to Silicon Valley firms sold in 2003 or 2004. Factors unique to the Silicon Valley VC market or to this time period could limit the generalizability of our results. Silicon Valley is a closely-knit community with its own norms and ways of doing business (Suchman and Cahill, 1996), where reputational considerations are particularly important (Black and Gilson, 1998). Our sample firms were sold several years after the tech bubble collapsed, a period during which VCs lost considerable amounts of money. These losses could have affected VC behavior around exit events, including their willingness to concede part of their liquidation preferences to common shareholders. Thus, the allocation of proceeds from the sale of startups in our sample could reflect not only common shareholder holdup power but also the post-bubble time period and factors unique to Silicon Valley.

In addition, our sample consists only of companies whose entrepreneurs voluntarily responded to our request for information. There could be systematic differences between firms whose entrepreneurs responded to our inquiries and firms whose entrepreneurs did not.[7] We sought to minimize such biases by soliciting data from

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eliminate such rights. Other things equal, this scenario causes VCs to prefer a merger exit and common stockholders to prefer an IPO (Hellmann, 2001). Common stockholders with sufficient power may push for an IPO instead of a merger, affecting VCs' cash flow outcomes.

[7] For example, entrepreneurs who have negative things to say about their VC investors may be reluctant to participate in our study out of fear that their views will get back to the VCs, making it harder for the entrepreneurs to get funding in the future. And entrepreneurs' perception of VCs could be, in part, a

every entrepreneur we could locate and offering each one complete confidentiality. However, our sample might not be completely representative of Silicon Valley firms sold in 2003 and 2004.

If our sample is not completely representative of Silicon Valley firms sold in 2003 and 2004, or if Silicon Valley firms sold in 2003 and 2004 are not be representative of VC-backed periods sold in other time periods and other locations, the frequency of contractual deviation in our sample may be higher or lower than it is in the sale of VC-backed firms generally. However, we see no reason why any such selection bias would affect our findings that such deviations are associated with common shareholders' holdup power.

   [INSERT TABLE 1]

3.3. Sample Description

The 42 firms in our relevant sample are all 'high-tech' businesses, and are primarily from the biotech, telecommunications, software, and internet sectors. Panel A of Table 1 provides a breakdown of our sample by industry. The concentration of IT related businesses in our sample is representative of VC financed companies generally (Kaplan and Strömberg, 2003 at 284).

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function of the amount they receive as common shareholders when their company is sold. If entrepreneurs with negative experiences are under-represented in our sample, and their firms had a lower frequency of carveouts to common shareholders, the actual frequency of deviation from contractual priority may be less than what our sample suggests

The firms in our sample received an average of $46 million in VC funding over three rounds of financing. Most of the firms were founded between 1997 and 2000, and at the time of sale had been operating for an average of approximately five years. The mean sale price was $48 million. Panel of B of Table 1 provides additional information on the amount of investment, financing rounds, years of operation, and sale price.

3.4. VC Cash Flow Rights

In our sample the VCs' aggregate liquidation preferences at the time of sale are approximately $50 million on average. Liquidation preferences are related to the amount invested. As Panel C shows, 1x preferences are the norm for the first round of financing, while subsequent rounds are more likely to use multiples. By the time the company is sold the aggregate preferences are on average somewhat greater than the amount invested in the company (Panel B).[8]

At the time of sale, however, what matters for the allocation of the proceeds is the relationship between the liquidation preferences and the sale price. If liquidation preferences exceed the sale price then common stock would be washed out under the terms of the preferred contract. Panel D illustrates that liquidation preferences exceeded the sale price in approximately 75% of the companies (31 of the 42) in our sample.

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[8] In some cases, however, aggregate liquidation preferences at the time of the sale are actually less than the amount invested. Although preferences less than 1x are not used in any financing round, in some firms the original preferences were reduced or eliminated by the time of the sale. Preferences are reduced in one of two scenarios. First, there might be a voluntary recapitalization of the firm, perhaps to eliminate "debt" overhang (Myers, 1977). Second, pay-to-play provisions may force a VC to convert to common stock (and thereby give up its preferences) if it fails to participate in a subsequent financing round.

3.5. Common Shareholder Power

This section describes the extent of each of the three sources of common shareholder power – board seats, corporate law rights, and the CEO position – in our sample firms. The data are summarized in Table 2. We then use our data to operationalize each shareholder power hypothesis.

3.5.1. Board Seats

Common shareholders may have power through their representatives on the board. We divide directors into three categories: (i) VC, (ii) common shareholders, and (iii) outside directors.[9] We have two ways of classifying directors. Under our "formal" classification we treat any director who is not a VC or a representative of common shareholders as an outside director. Outside directors are typically industry experts who are mutually agreed upon by the VCs and the common shareholders. Under this formal classification, one-third of directors are outsiders at the time of sale.[10]

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[9] If a professional executive has been appointed to serve as CEO, he or she is often assigned a board seat in the firm's charter. Startup charters often list the CEO board seat as being appointed by common stockholders. However, the common stockholders cannot appoint a new representative to this seat without replacing the CEO, and they cannot fire the CEO unless they control a majority of the board. Thus, under our formal classification professional executives sitting on the board are classified as 'outside directors', rather than common appointed directors.

[10] Our formal classification is similar to Kaplan and Strömberg (2003). However, we look at who actually fills the board seat, rather than contractual appointment rights. This distinction is sometimes relevant. For instance, the charter may create a seat for a mutually appointed outside director, yet the seat may remain unfilled if the VCs and common shareholders do not find or agree on such a director.

Some outside directors, however, may not truly be independent. VCs have extensive professional networks, and ties to potential outside directors (Fried and Ganor, 2006; Smith, 2005; Bratton, 2002). Because our formal classification may understate the true extent of VC control, we also create a 'de facto' board classification. Under the de facto classification, we treat outside directors as VCs (common) if the director was selected/nominated exclusively by the VCs (common). On the other hand, if both parties played a significant role in the selection or both had a prior relationship with the individual, we continue to classify the director as an outsider.

Panel A compares formal and de facto board seats. Under formal classification, at the time of sale an average of 48.3% of the directors are appointed by the VCs. Under de facto classification, average VC board representation increases to 58.6%. This difference is due to reclassified outside directors. The common's average board representation also increases under the de facto classification (from 18.4% to 20.4%), suggesting that common shareholders sometimes have significant influence over the nomination of outside directors. The effect, however, is much smaller. Panel B shows that the VCs have formal board control in 15 of 42 (36%) companies, and de facto control in 27 of 42 (64%) companies. In our sample common stockholders never have control of the board or even blocking rights at the time of the sale; however, in combination with outside directors, common stockholders can often block the sale of the firm.

The board blocking hypothesis predicts that deviations from contractual priority will be more likely when VCs have less representation on the board. We test the board blocking hypothesis by considering whether the VCs control a majority (>50%) of the board seats.

3.5.2. Shareholder Rights

All our companies were incorporated in either California or Delaware at the time of the acquisition, similar to findings that most public firms incorporate either in their home-state or in Delaware (Daines, 2002; Bebchuk and Cohen, 2003). Panel C shows that 27 out of 42 companies were incorporated in Delaware at the time of the sale. As we explain below, California law gives common shareholders somewhat more power vis-à-vis preferred shareholders to a limited extent through statutory voting rights, and to a greater extent through the threat of fiduciary litigation.

(1) Voting rights. California and Delware provide different voting rights for shareholders (Fried and Ganor, 2006). California requires major transactions to be approved by each class of shareholders voting separately In contrast, Delaware does not require a separate class vote: all outstanding shares are voted together. In all of our Delaware-incorporated companies, preferred shareholders' voting power exceeded that of the common shareholders, enabling preferred shareholders to dictate the outcome of a vote.

However, the difference in voting rights between California and Delaware incorporation may not be as significant as it appears. First, as indicated earlier, VCs have various ways of compelling a common class vote in favor of a sale, such as partially converting their preferred stock into common. Thus common shareholders lack true veto power even in California corporations.

Second, and more importantly, the California corporations code purports to subject 'quasi-California' corporations (corporations doing business in California but

24

incorporated elsewhere) to the requirement of a separate class vote.[11] California's legal ability to impose this requirement on firms incorporated elsewhere is contested. However, many (but not all) Delaware-incorporated companies located in California are conservatively advised by lawyers to hold a separate class vote. In our sample, all but one of the Delaware-incorporated firms held a separate class vote for common.

Thus, as a practical matter California incorporation may not give common shareholders much more power through voting rights than those of Delaware companies based in California. Nevertheless, common shareholders' ability to block a transaction is still likely to be greater in a California-incorporated firm, where a separate class vote is indisputably mandatory.

(2) Fiduciary litigation. California's substantive law makes it easier for common shareholders to prevail in a lawsuit against a preferred-dominated board (Fried and Ganor, 2006). Delaware law permits a preferred-controlled board to make decisions that favor preferred shareholders at the expense of the common, as long as the decisions can plausibly be defended as being in the "best interests of the corporation." In contrast, California law affords strong protection to minority shareholders, giving preferred-controlled boards a less free hand..

Even if substantive law were the same, directors of California companies may face greater risks in litigation. First, California's judiciary is less predictable than that of Delaware, which has specialized courts to deal with corporate law issues (Romano, 1993). Thus, the likelihood that a judge will "erroneously" impose liability on directors is higher

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[11] See Cal. Corp Code 2115 (West 1990).

in California than in Delaware. Second, because Delaware derives a significant amount of revenue from incorporations, its courts are more likely use their discretion to favor the VCs, who are repeat players and strongly influence incorporation decisions.

Thus, directors may believe they face greater risk of liability for harming common shareholders when their firm is incorporated in California. We operationalize the shareholder rights hypothesis based on whether the firm was incorporated in California or Delaware at the time of the acquisition, and predict that California incorporation will cause more deviations from contractual priority.

[INSERT TABLE 2 HERE]

3.5.3. Founder CEO

In all the companies in our sample (and in startups generally) the initial CEO was one of the founders. However, the founder is often replaced as the CEO within a short time frame (Wasserman, 2003; Hannan et al., 1996). In our sample 29 of 42 companies had replaced the founder with an outside CEO by the time of sale. We use CEO identity (founder or hired manager) to test the *founder CEO* hypothesis.[12]

4. Deviations from Contractual Priority: Evidence

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[12] Founder CEOs are likely to hold more common stock and be more loyal to common shareholders, who include any other founders, employees, and early investors. We would have liked to determine the extent to which the carveout to common was captured by the CEO. Unfortunately, however, we were unable to obtain complete information on CEO shareholdings.

In this section we describe the extent of deviation from contractual priority in our sample. We measure deviation from contractual priority by comparing the actual payout to preferred stockholders and their contractual priority right: the lesser of their liquidation preferences and the sale price.[13] To facilitate comparison among companies sold for different amounts we calculate the fraction of the VCs' priority right actually paid to the VCs (the "*realization rate*"). So if the VCs are entitled to $20 million but receive only $18 million, the *realization rate* is 0.9 (i.e. 18/20). If there is no carveout (i.e. priority is fully honored), the *realization rate* is one. Our null hypothesis is that the realization rate will equal one for each firm.

Table 3 describes deviations from contractual priority. Deviations occurred in 11 of the 42 companies (approximately 27%). Limited to this subset of 11 companies, the average carveout for common stock was $3.7 million and the average realization rate for VCs was 89%. Among all 42 companies, VCs gave up 2-3% of their contractual priority rights and common stock received on average almost $1 million more than its contractual entitlement.[14]

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[13] In those cases where (a) the sale price exceeds the liquidation preference and (b) the VC holds participating preferred stock, we define the contractual priority right as the sum of the liquidation preferences and the participation rights.

[14] In theory, there could be a deviation from contractual priority to benefit preferred stock at the expense of common. The common shareholders may be willing, for instance, to give up a portion of their residual cash-flow in order to induce reluctant preferred shareholders to support a sale favored by common. However, in our sample, every deviation from priority came at the expense of preferred stock.

[INSERT TABLE 3 HERE]

Figure 1 illustrates for each firm in the sample the distribution of sale proceeds between common stockholders and VCs. The height of each bar represents a firm's sale price. The sale price is divided into three components: (i) the amount actually paid to preferred stockholders, (ii) the carveout received common stockholders (if applicable), and (iii) common shareholders' contractual entitlement (excluding any carveout payment). The VCs' contractual entitlement is thus represented by the sum of (i) and (ii). The actual payment received by common stockI is represented by the sum of (ii) and (iii). Deviations from contractual priority are illustrated by the 11 carveout payments shown in figure 1.

[INSERT FIGURE 1 HERE]

Our results certainly do not imply that cash-flow rights are irrelevant. In over 70% of the transactions, the VCs cash flow rights are fully honored. What our results do imply, however, is that VCs' cash-flow rights are not perfectly reliable. The 'real' value of VCs' liquidation preferences is somewhat less, and sometimes considerably less, than the contract would suggest.

5. Explaining Deviations: Common Shareholder Power

In this section we test whether common shareholder holdup power predicts deviations from contractual priority. We estimate, using OLS regression, the following equation for deviation from contractual priority:

$$\textit{Realization rate} = F(\textit{holdup power, controls}) \tag{1}$$

Our dependent variable, *realization rate*, measures the fraction of the VC's cash-flow rights at time of sale actually paid to the VCs.[15]

5.1. Empirical Results

We use separate variables to test each hypothesis about common shareholder power. *Board blocking* is a dummy variable equal to one if VCs do not control more than 50% of the board seats on a 'de facto' basis at the time of the acquisition, and zero otherwise.[16] *Board blocking* should reduce VCs' expected *realization rate*. *Founder CEO* equals one if an original founder has remained the CEO through the time of sale and zero if she is replaced by a professional CEO before the sale. The Founder CEO hypothesis predicts a lower *realization rate* if a founder remained CEO at the time of sale. For shareholder rights we use a dummy variable, *California*, coded to one if the firm was incorporated in California at the time of sale, and zero if it was incorporated in Delaware. The shareholder rights hypothesis predicts that *California* will reduce the *realization rate*. Collectively, we refer to *Board blocking, Founder CEO, and California* as the 'power

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[15] In our sample the realization rate is never greater than 1. If the dependent variable were right-censored at 1 OLS estimates would be biased and the use of a tobit regression would be more appropriate. However, as we discuss in footnote 14 the realization rate could in theory take on values greater than 1, and nothing would prevent us from observing such values in our sample. Thus OLS should yield unbiased estimates. In any event, we ran regressions using tobit and obtained similar results.

[16] We use the de facto coding for board blocking, since we believe it is a more accurate measure of the strength of VC control. Formal board blocking yields similar results in each regression.

variables'. Figure 2 illustrates, for each power variable, the distribution of sale proceeds between common stockholders and VCs.

[INSERT FIGURE 2 HERE]

We also include numerous control variables to separate the effect of common shareholders' holdup power from other factors that might affect deviations from contractual priority. We describe particular control variables throughout the remainder of this section. Table 4 defines all the variables used in our models and provides summary statistics for each. Table 5 shows a pairwise correlation matrix for the included variables.

[INSERT TABLE 4 & 5 HERE]

We use OLS to estimate the effect of holdup power on deviations from contractual priority. The results of five OLS models are reported in table 6. Model 1 estimates the effect of our three power variables – *Board blocking, Founder CEO,* and *California* – on realization rate without any controls. As our hypotheses predict, each source of holdup power has a negative and significant effect.

[INSERT TABLE 6 HERE]

In the remaining models we add controls for various features of the startup company and the acquirer. To account for the stage of development we measure the number of *rounds of financing*. To proxy for the size of the startup, and the amount that the VCs have at stake we use the total amount invested (*total invested)*. We use a dummy variable, *serial entrepreneur,* to code if any of the company's founders had previously founded another company. *Management Bonus (%)* records any non-retention bonuses paid to employees in connection with the acquisition as a percentage of the sale price. In

startup companies the senior executives often hold considerable common stock. A large

management bonus can be used to buy a considerable number of common shareholder

votes. Thus, management bonuses could partially substitute for carveout payments to

common stockholders as a class.[17] To control for the acquirer's financial structure, we

use a dummy variable, *Public Acquirer,* set equal to one if the acquirer was publicly

traded at the time of the acquisition. Following Gompers (1996), we account for VC

reputation by measuring the average age of the VC firms that led each round of financing

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[17] As we discussed in Section 2, the cooperation of the CEO is necessary to sell the company, giving her the

ability to extract value from the VCs. In at least 16 of the 42 companies in our sample, non-retention

bonuses – payments not contingent on continued employment with the acquirer -- were given to

management (including but not necessarily limited to the CEO) upon closing the sale. Management

bonuses are difficult to classify and measure. Such payments benefit individuals who often hold (and can

vote) large amounts of common stock. Thus, it might be argued that these payments are, at least in part,

disguised non-pro-rata payment to common shareholders, rather than payments to employees.

Unfortunately, determining the purpose of a management bonus is very difficult. To be conservative in our

measurement of deviation from contractual priority, we assume that management bonuses are not payments

to managers as common shareholders, but rather payments to managers as employees.

If management bonuses are in fact disguised payments to common stockholders, they should be included in

our measure of the dependent variable, and for this purpose only they should also be added to the sale price,

since they constitute value that could have gone to preferred stockholders. To account for this possibility,

we ran regressions on a modified realization rate that treated non-retention management bonuses as part of

the sale price and therefore available to shareholders as a group, but paid only to common shareholders   In

these (unreported) regressions the coefficient estimates for our three power variables are similar to (though

less significant than) the results reported in Table 6.

for each company ('*VC* age').[18] These six control variables are added to all our
remaining models.

Common stockholders' bargaining incentives may depend on the relationship
between the sale price and the liquidation preferences. Under contractual priority, if
liquidation preferences exceed the sale price common shareholders should get nothing
(be "washed out"). In a washout, common stockholders have little to lose by blocking
the sale. And when a future sale may yield a price greater than the liquidation
preferences, they have something to gain by obstructing the transaction. On the other
hand, if the sale price in the current offer exceeds the liquidation preferences, common
stockholders risk losing the value of their residual claim by blocking such a sale. These
financial considerations affect the credibility of common stock's threat to holdup the sale,
and we expect common stockholders to more aggressively pursue a carveout if they
would otherwise be washed out in the deal. To capture this possibility we code *washout*
equal to 1 whenever the sale price is less than the liquidation preferences and 0 otherwise.

VCs' bargaining incentives may depend on whether the company is sold for a
profit (an amount greater than total investment). If the startup is sold for a profit, VCs can
give a carveout without incurring a loss on their investment. To the extent the VCs are
loss-averse, they will be less reluctant to give common shareholders part of their
liquidation preference when the company is sold for a profit than when it is not. To

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[18] We also code for VC reputation based on dollars under management and VC location (following Lerner's
(1995) finding that physical proximity affects VC monitoring and representation on startup boards). These
alternative measures are highly correlated with VC age. The decision to use VC age rather than these other
measures does not affect our findings.

control for this possibility we code *profit* equal to one if the sale price is greater than the amount invested, and zero otherwise. In some instances, a company may be sold for more than the amount invested but less than the liquidation preferences.

We also account for the unrealized option value of the stock; the higher is the option value, the more common shareholders have to lose in the sale, and the harder they will push for a carveout. When the sale price in the current offer is significantly below the liquidation preferences, a future offer is less likely to be higher than the liquidation preferences. Thus, the option-value of common stock is relatively low. On the other hand, if the sale price in the current offer is just below the liquidation preferences, it is more likely that a better offer would put common stockholders in the money, and thus common stock's option-value would be greater. There is a similar effect when the sale price exceeds the liquidation preferences. The likelihood that a future offer will provide more value to common shareholders declines with the difference between the sale price and liquidation preferences. Thus, the stock's option value will be lower the greater the difference between the sale price and liquidation preferences. To control for unrealized option value we calculate the natural log of the absolute value of the difference between the sale price and the liquidation preferences at the time of the sale (*Log |Price – LP|*). We add these three financial incentive control variables – washout, profit, and our measure of the common's unrealized option value -- to models 3 – 5.

We also control for the law firm of the startup company. The startup's law firm can influence the choice of corporate law and other governance arrangements. The law firm can also affect how the sale is structured, and may discourage (or encourage) common shareholders from seeking a carveout payment. We determine the law firm

representing the startup company at the time of the sale. We use a separate dummy variable for each law firm that represented at least five companies.[19] In model 4 we add law firm dummy variables as additional controls.

Finally, we control for industry effects. We use the industry classification provided by www.linksv.com for each startup in our database. In model 5 we include industry dummy variables for *Biotech*, *Telecom*, *Software*, and *Other IT*. The *Internet* industry is the excluded category.

The results displayed in table 6 provide preliminary support for our three holdup power hypotheses. *Board blocking, Founder CEO* and *California* are each negatively correlated with the realization rate in all models and each is statistically significant at the 10% level or better in most cases. Our results are robust to various controls and to law firm and industry effects. We find that the strength of VCs' control vis-à-vis common shareholders predicts the reliability of VCs' cash flow rights.

To graphically illustrate the relationship between control and the reliability of cash flow rights, we construct a rough index for common stockholder power. The index is created by summing *Board blocking, Founder CEO,* and *California* for each firm. The resulting common stockholder power index ranges from zero to three, with higher scores representing greater holdup power for common stock. Figure 3 illustrates that the

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[19] In our sample three law firms met this criteria: Wilson Sonsini Goodrich & Rosati (representing 10 firms), Cooley Godward (representing 6 firms), and Venture Law Group (representing 6 firms). Unfortunately, we cannot create a similar dummy variable for VC investor. No VC firm shows up more than a few times in our sample, and including a variable for each would use up too many degrees of freedom. Instead we use *VC age* to capture VC firm effects.

common stockholder power index is negatively correlated with *realization rate*. The downward slopping curve shows that the VC's realization rate is lower when common shareholders have more holdup power.

[INSERT FIGURE 3 HERE]

We consider the economic significance of common shareholder power. The models reported in table 6 show that the VC's *realization rate* is forecasted to be 3.7% to 6.0% lower (mean = 5.2%) when VCs do not control the board, between 2.0% to 6.0% lower (mean = 4.0%) when the founder remains the CEO, and between 2.1% to 3.5% lower (mean = 2.8%) when the firm is incorporated in California at the time of sale.

To estimate the economic magnitude of these predictions we re-estimate model 3 using the dollar value of carveout payments awarded to common stock – *Carveout ($)* – as our dependent variable. The results are reported in table 7 under model 6. We find that common stock can expect to receive, *ceteris paribus,* an extra $1.98 million when VCs do not control the board, an extra $1.62 million when the founder remains the CEO, and an extra $1.75 million when the firm is incorporated in California. When all factors are simultaneously present, common stock can expect to receive, in our sample, an additional carveout of $5.4 million. While these are rough estimates they give a sense of the financial significance of control at the time of the sale.[20]

[INSERT TABLE 7 HERE]

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[20] As we discuss in Section 6, common shareholder power may also have ex ante effects on the firm as well as determine whether or not a sale occurs.

One might wonder why VCs do not, around the time of sale, attempt to increase their power vis-à-vis common shareholders. However, the allocation of board seats, the state of incorporation, and the CEO cannot easily be changed by the VCs, especially on short notice. The allocation of board seats is carefully negotiated among many parties, often including the founders. These other parties may not agree to increase VCs' board seats without getting something in return. Reincorporation out of California into Delaware can be blocked or delayed even by a minority of the common shareholders, the group that benefits the most from remaining a California corporation.[21] If VCs control the board, they can fire a founder-CEO. But if the founder-CEO is valuable to the enterprise, the cost of replacing the CEO is likely to far outweigh the benefit to VCs of reducing that particular source of common shareholder power.

In fact, no significant corporate governance changes occur in the immediate vicinity of a sale in our sample. Four firms in our sample reincorporated from California to Delaware. However, each reincorporation occurred at least two years before the sale. Board composition is similarly stable in the vicinity of the sale. Control of the board did not change in the three months immediately prior to the sale in any of our firms. And the vast majority of the CEO changes in our sample occurred at least a year before the firm was sold.

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[21] Under the California Corporations Code, state approval is required for such reincorporation. See Cal. Corp Code 25120-42. When no shareholders object, such approval is typically quickly granted. But if a single shareholder objects the state may investigate the "fairness" of the reincorporation, delaying the transaction. Thus even if a majority of common shareholders approves such a reincorporation, a few dissenting shareholders can impede it.

5.2. Robustness Checks

In this section we consider an alternative specification of our dependent variable, check for outlier effects, and address the possibility of omitted variable bias. The distribution of power between common and preferred stock should affect the *frequency* as well as the *expected magnitude* of deviation from priority. To test this hypothesis we generate a new binary dependent variable – *Carveout (Y/N)* – that equals one if a carveout payment was awarded to common stockholders, and zero otherwise. Since we have a small sample size a maximum likelihood estimator (i.e. probit) would generate biased estimates (Greene, 2003). Instead we use a linear probability model to re-estimate model 3 using the binary dependent variable. Our results are shown in model 7. As our hypotheses would predict each measure of shareholder power reported in these models increases the likelihood of deviation. However, *Board blocking* is now the only statistically significant power variable.

One limitation of least squares estimation is that it is prone to outliers, particularly in small samples. To test for the effect of outliers in our sample we calculate DFbeta coefficients for *Board blocking, Founder CEO,* and *California*. Using model 3 as our base model, we first estimate the model as reported in table 6. Second, we drop one observation and reestimate the same model on the remaining 41 observations. The coefficient estimates in the reestimated models are compared to the base model. Formally expressed this comparison is measured by:

$$\text{DFbeta} = (b_k - b_{k(i)})/s_{e(i)},$$

where b_k is the estimate for the kth variable, $b_{k(i)}$ is the corresponding coefficient with observation i excluded, and $s_{e(i)}$ is the standard error of the regression with observation i

excluded. If there is a big difference in the coefficient estimates, b_k and $b_{k(i)}$, the observation that was dropped had a large influence. This process is repeated for each of the 42 observations to determine its influence on the regression coefficients. Values of DFbeta greater than one in absolute value are considered large and potential outliers (Bollen and Jackman, 1990).

In our sample only one observation generated a DFbeta above this critical value. In this particular observation the DFbeta for *Board blocking* is -1.61, indicating a large influence on the *Board blocking* coefficient. Without this observation the coefficient estimate for *Board blocking* equals -.032, compared to -.055 in the full sample for model 3. Despite this influence, the coefficient estimated with this observation excluded remained significant at the 5% level (standard error = .015). This suggests that our basic results are robust to outliers.

Because board control, state of incorporation, and the identity of CEO are determined in advance of the sale, our model is unlikely to have simultaneity or reverse causation problems. However, our results could be driven by unobserved factors that correlate both with observed common shareholder power measures and with deviations from contractual priority. If such factors are present this could lead to an omitted variable bias in our least squares estimates. Such concerns often arise in studies using corporate governance features to predict outcomes. Resolving causation in this setting is difficult, since almost all the relevant variables are endogenous (Hermalin and Weisbach, 2003). In our case, we reduce the risk of unobserved heterogeneity by controlling for a broad range of factors, and by limiting our sample to VC-backed companies that were

located in one area (Silicon Valley) and sold during a narrow period of time. Nevertheless, we cannot rule out the possibility of omitted variable bias.

Ideally, one would address the omitted variable problem by instrumenting for each treatment variable or otherwise estimating a system of reduced form equations. In our case, however, a good instrument is simply not available. All the potential instruments we considered were either endogenous or at best weakly correlated with the allocation of control rights.

Instead, we estimate the sensitivity of our findings to omitted variables using a technique developed by Altonji, Elder, and Taber (2005). This technique utilizes the insight that the amount of selection of the potentially endogenous variable on the other observed explanatory variables in a model can serve as a guide to the amount of correlation between the treatment and unobserved variables. Their technique is designed for evaluating causation in non-experimental settings such as ours, and it lets us estimate how much selection on the unobservables would be necessary to invalidate our findings.

Focusing first on the allocation of board seats, the regression used in model 3 can be expressed as:

$$Y = \alpha + \beta C + X'\gamma + \varepsilon \qquad (2)$$

where Y is the *realization rate*, C is *Board blocking,* and X is a vector of all other included explanatory variables. The concern is that cov(C, ε) may not be zero, as is required for OLS regression to provide unbiased estimates. Applying the Altonji, Elder, and Taber (2005) approach to our model, we compare the normalized shift in the

unobservables conditional on *Board blocking* [expression (3)] with the equivalent shift in

the observables [expression (4)]. This gives us the following expressions[22]:

$$\frac{E(\varepsilon \mid C = 1) - E(\varepsilon \mid C = 0)}{var(\varepsilon)} \qquad (3)$$

and

$$\frac{E(X'\gamma \mid C = 1) - E(X'\gamma \mid C = 0)}{var(X'\gamma)} \qquad (4)$$

where X'γ are fitted values from regression model 3 predicting *realization rate* but

excluding *Board blocking*, and ε represents associated residuals.

Following Altonji, et al (2005) we can express the bias in our estimate of β as:

$$\text{Plim b} = \beta + [var(C)/var(\mu)][E(\varepsilon \mid C = 1) - E(\varepsilon \mid C = 0)] \qquad (5)$$

where μ is the residual term from a regression of C on X (results shown in Appendix).

We want to know how large $[var(C)/var(\mu)][E(\varepsilon \mid C = 1) - E(\varepsilon \mid C = 0)]$ must be for the

true value of β to equal zero (i.e. to invalidate our results). The fact that the term $[E(\varepsilon \mid C = 1) - E(\varepsilon \mid C = 0)]$ is included in both (3) and (5) lets us estimate how large the shift in

the unobservables (3) must be relative to the shift in the observables (4) to create a large

enough bias to invalidate our estimate for β.

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[22] We loosely follow the notation used in de Figueiredo and Edwards (2006), who apply Altonji, et al.

(2005) to their study of campaign contributions in the telecom industry.

Altonji et al (2005) show that selection on the unobservables (3) will equal

selection on the observables (4) if the included variables are chosen randomly from the

vector of all characteristics (observable and unobservable) that determine the dependent

variable. Given that researchers attempt to reduce bias in the choice of included variables,

in most studies we would thus expect (3) to be much smaller than (4). If we find that the

absolute value of (3) must be larger than (4) to invalidate our estimate for β, the case for a

causal link between the observed independent variables and the dependent variables is

strengthened. More details of this method and our calculations are presented in the

Appendix.

For board control we find (3) would have to be 5.62 times larger in absolute value

than (4) to invalidate our estimate for β. In order to remove the entire estimated effect of

Board blocking on realization rate, the unobservables would have to explain more than 5

times the variance in C as is explained by the observables. Given the care we took in

choosing our variables to reduce bias, and following Altonji et al (2005) and di

Figueiredo and Edwards (2006) we consider this extremely unlikely.[23]

We use a similar technique to estimate the sensitivity of *Founder CEO* and

California to omitted variable bias. We repeat the steps above to find the implied ratio of

(3) to (4) that would be necessary to invalidate our reported results for *Founder CEO* and

California. Our calculations are presented in the Appendix. For *California* the ratio is -

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[23] Altonji, Elder and Taber's study reports ratios of 3.55 and 1.43 for the effect of Catholic school

attendance on high school graduation and college attendance. They conclude in both cases that the effect

of Catholic school attendance is not spurious (see pages 176 – 178). di Figueiredo and Edwards (2006)

reach similar conclusions in their study of campaign contributions in the telecom industry.

1.21; and for *Founder CEO* the ratio is 1.23. Although the implied ratios for *California* and *Founder CEO* are less than *Board blocking*, in absolute value all ratios are greater than one, suggesting that the relationship between common shareholder power and VC's realization rate is not spurious. Our results for *Founder CEO* and *California*, however, are less robust than our result for *Board blocking*.

To be clear, the analysis above does not prove that our coefficient estimates are unbiased. What it does imply, however, is that the omitted variable bias is unlikely to be large enough to invalidate our finding that *Board blocking, Founder CEO,* and *California* each have a negative effect on VCs' realization rate.

Discussions with Silicon Valley venture capitalists and lawyers and the entrepreneurs providing us with data confirm that we have correctly identified the causal process: that common shareholder power affects the likelihood and extent of the carveout. For example, in at least one California-incorporated firm, VCs carved out a portion of their liquidation preferences for common shareholders and required each common stockholder to sign a liability waiver before receiving a portion of the carveout. According to the entrepreneur, the carveout was offered only because the VCs were concerned about a possible common shareholder suit challenging the terms of sale. In this case, the carveout payment was clearly prompted by the threat of shareholder litigation.

In another case, the VCs, who did not control a majority of his firm's board, attempted to convince reluctant independent directors and directors appointed by common stockholders to support a sale. To obtain their support, the VCs offered various concessions, one of which was a carveout payment to common shareholders.

These anecdotal accounts, together with theory, econometric results, and statistical robustness checks, strongly suggest that common shareholders' holdup power affects VCs' abilities to realize their cash flow rights. Other than the hypothesized use of common shareholder holdup power to extract part of VCs' liquidation preferences, it is difficult to explain the strong correlation that we find between common shareholder power and deviations from contractual priority.

6. Ex Ante Effects of Common Shareholder Power

Common shareholders' ability to extract carveouts from VCs' liquidation preferences, by itself, merely affects an ex post redistribution of value among participants in the startup. The transaction costs of renegotiation likely reduce the total proceeds available to all the participants ex post. In principle, one could more efficiently achieve the same distributional effects by removing common shareholders' holdup power and giving common shareholders slightly better financial terms ex ante.

However, common shareholder power is in large part the direct or indirect product of the parties' contractual arrangements. The parties could therefore reduce at least some sources of common shareholders' power. For example, the parties could, if they all agreed, easily re-incorporate a California firm into Delaware. The fact that they choose not to do so suggests that allocating power to common shareholders, while creating ex post costs, could nevertheless provide ex ante benefits.

We offer for consideration two reasons why the parties might find it desirable to limit VCs' control by giving common shareholders power in the startup. First, common

shareholder power may reduce the agency costs associated with preferred shareholder control (Fried and Ganor, 2006). Because VC cash flow rights differ from common shareholders', VCs may prefer courses of action that maximize the value of preferred stock but not total shareholder value. Giving common shareholders some power may prevent VCs from making some value-reducing decisions, thus increase the expected payout to shareholders as a group. Specifically, giving common shareholders power might make it more difficult for VCs to push through sales that fail to maximize aggregate shareholder value.

Second, giving common shareholders power could increase both the value and incentive effects of the equity compensation used to compensate and motivate employees (Fried and Ganor, 2006). Equity compensation allows liquidity-constrained startups to compete in the labor market for talented employees and aligns the interests of employees with those of shareholders. To the extent VCs can eliminate the value of common stock ex post through a washout sale, the ex ante value of the equity compensation given to employees will be lower and its desirable incentive effects diluted. Giving common shareholders power to obstruct such sales may therefore enable the startup to more efficiently provide compensation to employees.

Our data do not allow us to test whether firms deliberately increase common shareholder power in order to improve the quality of sale transactions or provide better incentives to founders and employees. We thus offer these explanations only as possible hypotheses for why parties may choose to give common shareholders the power to extract part of VCs' cash flow. We leave it to future work to investigate more

systematically whether parties deliberately give common shareholders power for these or other reasons.

7. Conclusion

Using a hand-collected dataset of Silicon Valley startups sold in 2003 and 2004, this paper investigates whether common stockholder may try to use their holdup power to extract a "carveout" of the VCs' liquidation preferences before allowing the transaction to go forward. It finds that VCs sometimes receive less than their contractual entitlement, and that the likelihood and magnitude of deviations from contractual priority are larger when VCs have less power vis-à-vis common shareholders. For example, common-favoring deviations are more likely to occur and larger when VCs lack board control, and when state corporate law gives common shareholders more leverage.

Our study contributes to a better understanding of VC contracting arrangements and of how VCs exit their investments. It sheds light on the largely overlooked role of common shareholders in the corporate governance of VC-backed firms. Our results also provide the first evidence that corporate law can affect financial outcomes in private companies. More generally, our study shows that investor cash flow rights shape, but do not fully predict, cash flow outcomes: as incomplete contracting theory asserts, control matters.

Our work suggests a number of interesting avenues for future research. For example, it may be worth investigating sales of startups in locations outside Silicon Valley and in other time periods. Because firms are usually incorporated either in their

home state or in Delaware, a study of startups located outside California would enable researchers to test the difference between Delaware law and the laws of other states; this, in turn, may allow researchers to better determine which features of corporate law – voting rights or fiduciary duties – tend to give common shareholders more power vis-à-vis VCs. It would also be worthwhile to examine the ex ante effects of common shareholder power, such as whether it affects not only *how* VCs exit but also *when* they exit. We hope our study will convince scholars of the interest and importance of pursuing such research, and be useful to courts, legislatures and practitioners seeking to better understand and improve the corporate governance of venture-backed startups.

Appendix: Sensitivity to Unobserved Variables

We calculate the implied ratio of (3) to (4) that would be necessary to explain away the entire estimated effect for each of the following treatment variables: *Board blocking, Founder CEO,* and *California*. We calculate the implied ratio for each variable separately using the regression reported in model 3. Recall that our regression takes the form:

$$Y = \alpha + \beta C + X'\gamma + \varepsilon \tag{A.1}$$

where Y is the *realization rate*, C is the relevant power variable (*Board blocking, Founder CEO,* or *California)*, and X is a vector of all other included explanatory variables excluding the power variable. Now let X'δ and μ represent the predicted value and residuals of a regression of C on X, such that C = X'δ + μ. By substituting into A.1 we get:

$$Y = \alpha + X'(\beta\delta + \gamma) + \beta\mu + \varepsilon \tag{A.2}$$

Since μ is orthogonal to X we can express the bias in our estimate for β as:

$$\text{Plim } b \quad =\sim \beta + [cov(\mu, \varepsilon)/var(\mu)]$$

$$= \beta + [var(C)/var(\mu)][E(\varepsilon \mid C = 1) - E(\varepsilon \mid C = 0)] \tag{A.3}$$

Our strategy is to find the implied value of $[E(\varepsilon \mid C = 1) - E(\varepsilon \mid C = 0)]$ that would cause the bias term to exactly wash out our estimate for β. This can then be substituted into (3). The remaining terms in (3) and (4) can be estimated directly.

Board blocking

Our implied estimate for $[E(\varepsilon \mid C = 1) - E(\varepsilon \mid C = 0)]$ will equal β / [var(C) / var(μ)]. We can solve for this since model 3 gives us β = -.055 and [var(C) / var(μ)] = 1.633. This gives us an implied estimate $[E(\varepsilon \mid C = 1) - E(\varepsilon \mid C = 0)]$ = -.034, which would exactly explain away our entire estimate for β. Our estimate for $[E(X'\gamma \mid C = 1) - E(X'\gamma \mid C = 0)]$ / var(X'γ) is 4.214 and var(ε) is .0014. This gives us sufficient information to construct the implied ratio (3) / (4), which we find to be 5.627 in absolute value. In order to explain away the entire estimated effect of *Board blocking* on realization rate, the unobservables would have to explain 5.6 times the variance in C as can be explained by the observables. Following Altonji, et al (2005) we consider this extremely unlikely.

Founder CEO, and *California*

Using the data in the table below we can use the same steps to calculate the implied ratio for *Founder CEO,* and *California*. For *California* we find a ratio of -1.21; and for *Founder CEO* a ratio of 1.23. Since each of these is greater than one in absolute value, following Altonji, et al (2005), we consider it very unlikely that omitted variables could explain away our findings.

	β	$[E(X'\gamma \mid C = 1) - E(X'\gamma \mid C = 0)] / var(X'\gamma)$	var(ε)	$var(C) / var(\mu)$	Implied $[E(\varepsilon \mid C = 1) - E(\varepsilon \mid C = 0)]$	Implied Ratio
Board blocking	-.055	4.214	.0014	1.633	-.034	**-5.627**
CA	-.035	14.631	.0014	1.386	-.025	**-1.212**
Founder CEO	-.035	-12.907	.0014	1.546	-.023	**1.230**

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Table 1: Descriptive Statistics and Liquidation Preferences

This table provides descriptive statistics for a sample of 42 VC-backed firms sold in 2003 or 2004. Panel A shows industry distribution. The industry for each company is determined by the sector classification provided by www.linksv.com. The medical sector is included under 'Biotech'. The 'Other IT' category includes (i) computer, (ii) semiconductor, (iii) outsourcing and (iv) data storage. Panel B reports the mean and median period of operation, number of financing rounds, amount invested, and sale price for the firms in our sample. Panel B also shows the aggregate liquidation preferences ('LP') held by the VC investors at the time of sale and describes the LP as a ratio of the amount invested and of the sale price. Panel C shows the preferences issued in each round of financing. The first column lists the number of financing rounds that used 1x preferences. The second and third columns list financing rounds where preferences between 1x up to 2x and greater than 2x were used respectively. The final column lists financing rounds where the liquidation preferences of earlier investors were waived or reduced (a 'recap' financing). Panel D shows, at the time of sale, the number of companies where the LP was greater or less than the sale price

Panel A: Industry Distribution of Companies

	Biotech	Telecom	Sector Software	Internet	Other IT
Sample firms (n=42)	5	11	11	8	7

Panel B: Financing Overview

	# obs.	Mean	Med.	SD
Years of Operation	42	5.31	5	1.64
Number of Financing Rounds	42	3.14	3	1.13
Amount Invested (millions $)	42	46.27	35.1	38.38
Sale Price (millions $)	42	47.61	19	108.89
Aggregate LP (millions $)	42	50.15	38.75	40.17
LP divided by amount invested	42	1.197	1	0.576
LP divided by sale price	42	10.01	1.78	27.05

Panel C: Negotiated Preferences

	1x	≤ 2x	> 2x	Recap
1st round (n=42)	39	2	1	0
2nd round (n=32)	19	9	3	1
3rd round (n=21)	13	2	1	5
4th round (n=10)	2	2	2	4
5th round (n=5)	1	1	0	3

Panel D: Relation of Liquidation Preferences to Sale price

	LP > sale price	LP < sale price
Number of Companies	31	11

Table 2: Control Rights

This table reports the distribution of corporate governance rights in a sample of 42 VC-backed firms sold in 2003 or 2004. Panel A reports the mean and median board representation for (i) common shareholders, (ii) VCs, and (iii) outside directors. The board seats are shown on a formal and de facto basis (see accompanying text for the distinction between the formal and de facto board classifications). Panel B shows board control at the time of the acquisition. If the VCs (or common) control more than half the board seats, we classify this as 'Control'. If the board has an even number of seats and the VCs (or common stockholders) appoint exactly half the directors, we treat this as 'Blocking'. 'Shared Control' means that the VCs and the common each appoint less than half the directors, with outside directors constituting the tie breaking vote. Panel C shows the state of incorporation at the time of the acquisition. Panel D shows whether a founder remained CEO at the time of sale.

Panel A: Board Seats at Time of Acquisition

	# obs.	Mean	Med.	SD	Min	Max
Total number of board seats	42	5.76	5	1.54	3	9
Formal Board Seats						
Common seats (% of board)	42	18.4%	20.0%	0.084	0	40%
VC seats (% of board)	42	48.3%	50.0%	0.110	16.7%	66.7%
Outsider seats (% of board)	42	33.3%	28.6%	0.144	0	83.3%
De Facto Board Seats						
Common seats (% of board)	42	20.4%	20.0%	0.098	0	42.9%
VC seats (% of board)	42	58.6%	57.1%	0.174	16.7%	100%
Outsider seats (% of board)	42	21.0%	20.0%	0.188	0	83.3%

Panel B: Distribution of Board Control

	Common Control	Common Blocking	Shared Control	VC Blocking	VC Control
Formal Board (n=42)	0	0	16	11	15
De Facto Board (n=42)	0	0	10	5	27

Panel C: State of Incorporation

	Delaware	California	Other
State of incorporation at time of sale	27	15	0

Panel D: CEO Position at Sale

Outsider CEO	29
Founder CEO	13

Table 3: Deviation from Priority

This table describes deviations from contractual priority in a sample of 42 VC-backed firms sold in 2003 or 2004. The first two rows list the mean and median carveout payment (in millions $) and realization rate for the full sample. The last two rows provide this data limited to companies where a deviation from contractual priority occurred.

All Companies	# obs.	Mean	Mdn	SD	Min	Max
Carveout to common (millions $)	42	0.96	0	2.36	0	10
Realization rate	42	.972	1	.064	.733	1
Companies with Deviations						
Carveout to common (millions $)	11	3.70	2.5	3.44	0.03	10
Realization rate	11	.893	.9	.087	.733	.99

Figure 1

Using a sample of 42 VC-backed firms sold in 2003 or 2004, figure 1 shows the distribution of merger proceeds between preferred and common stockholders. Each bar represents a firm's total sale price (in millions $). The sale price is divided into three components: (i) the amount actually paid to preferred stockholders, (ii) the carveout payment awarded to common stockholders (if applicable), and (iii) the contractual entitlement of common stockholders at the given sale price. The VCs' contractual entitlement is represented by the sum of (i) and (ii), while the actual payment received by the VCs is represented by (i). Common stock's contractual entitlement is represented by (iii), while the actual payment received by common stock is represented by the sum of (ii) and (iii). All firms sold for more than $100 million are normalized to a purchase price of $100 million. This is done for ease of presentation and to protect the confidentiality of firms sold for a particularly high, and thus potentially identifiable, purchase price.
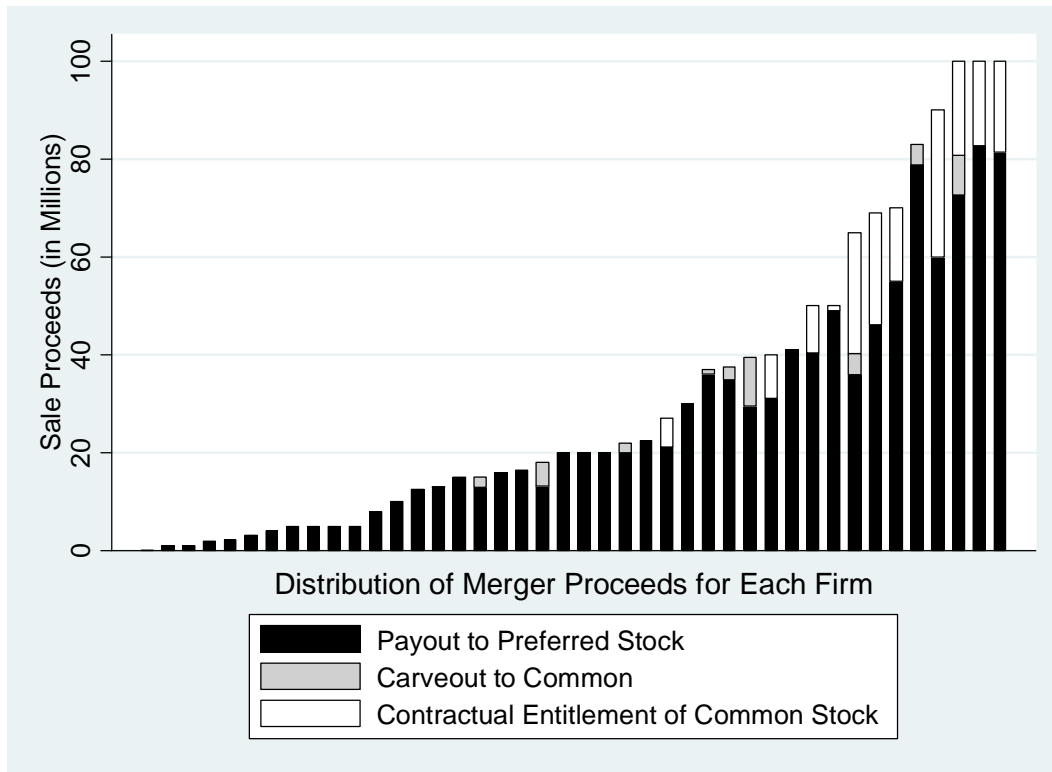
Figure 2

Using a sample of 42 VC-backed firms sold in 2003 or 2004, figure 2 shows the distribution of merger proceeds between preferred and common stockholders. Each bar represents a firm's total sale price (in millions $). The sale price is divided into three components: (i) the amount actually paid to preferred stockholders, (ii) the carveout payment awarded to common stockholders (if applicable), and (iii) the contractual entitlement of common stockholders at the given sale price. For ease of presentation and to protect the confidentiality all firms sold for more than $100 million are normalized to a purchase price of $100 million. Figure 2A divides the sample into firms in which the VCs control the board (i.e. *Board blocking* = 0) and firms where the VCs lack board control (i.e. *Board blocking* = 1). Figure 2B divides the sample into firms that have hired a professional CEO (i.e. *Founder CEO* = 0) and firms that have retained a founder as CEO (i.e. *Founder CEO* = 1). Figure 2C divides the sample into firms incorporated in Delaware (i.e. *California* = 0) and firms incorporated in California (i.e. *California* = 1).
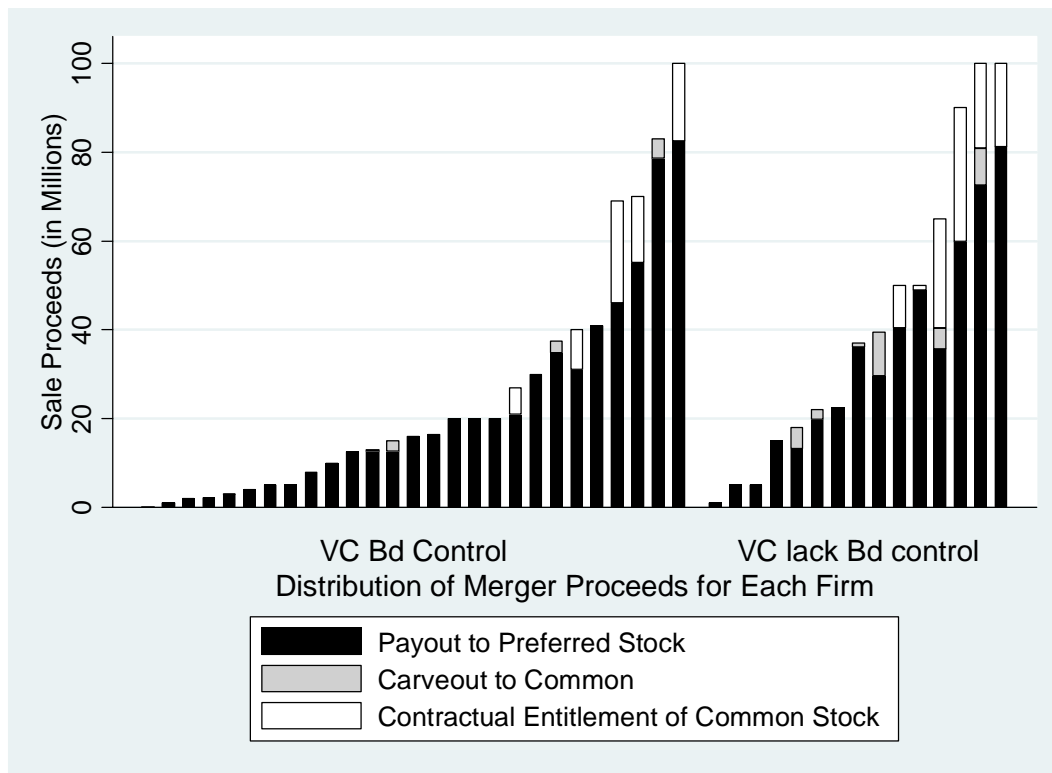
Figure 2A: Board Control

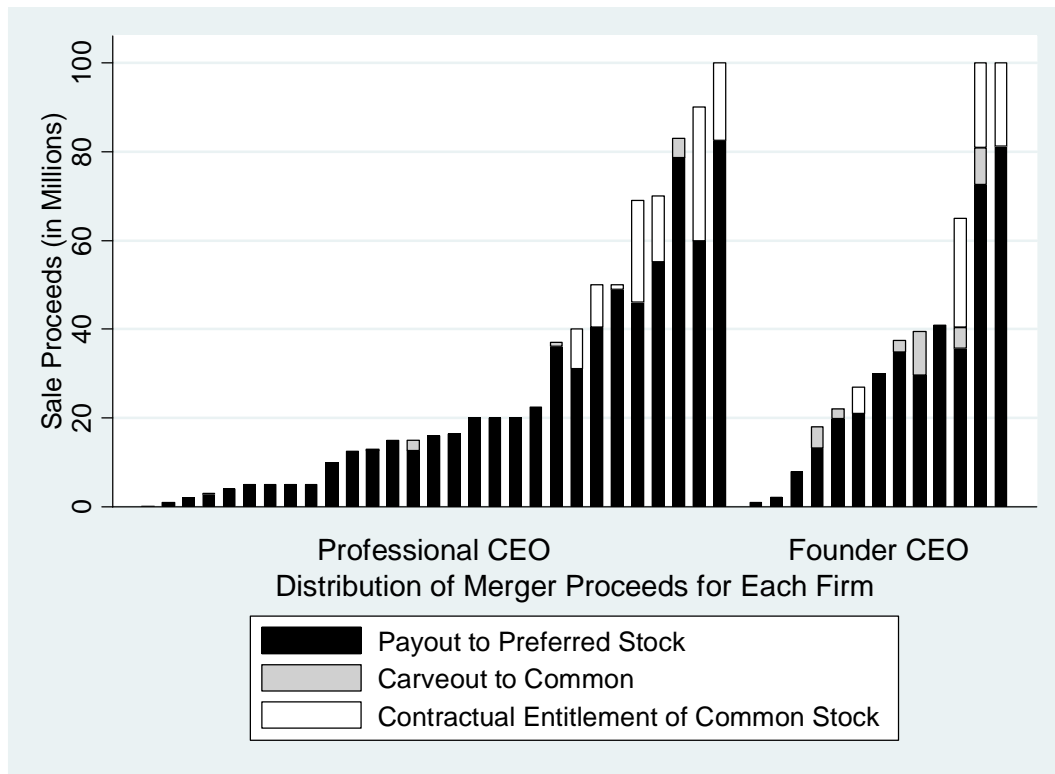55

Figure 2B: CEO Position

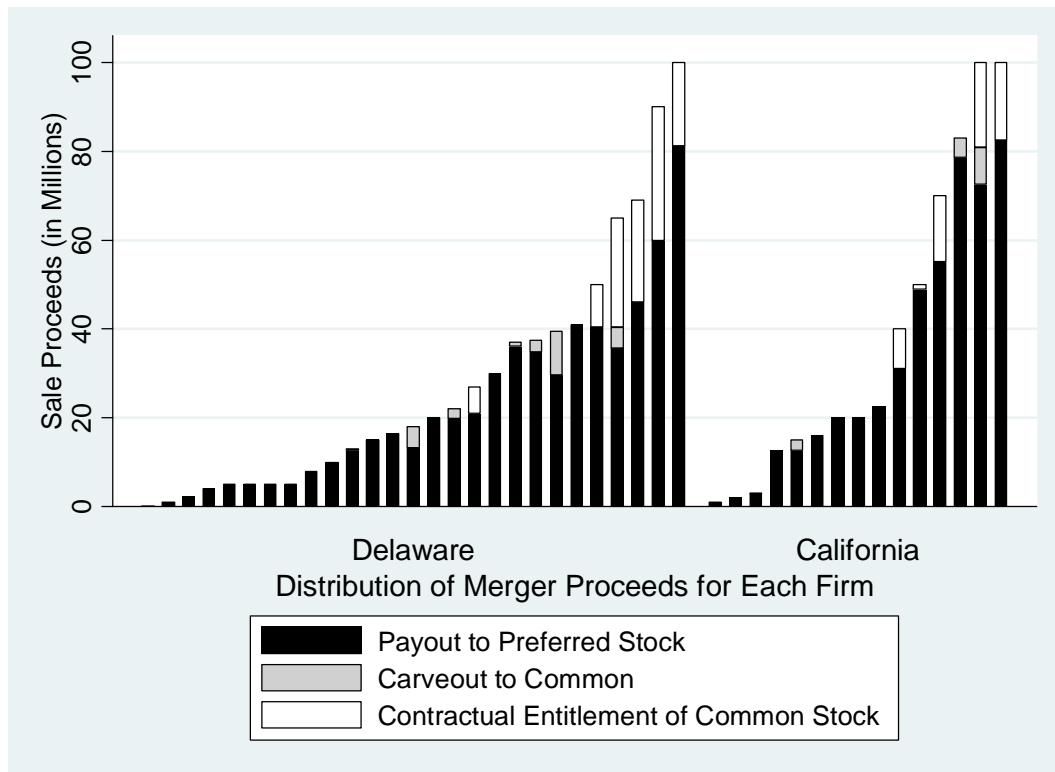

Figure 2C: State of Incorporation

Table 4: Variable Definitions and Summary Statistics

This table defines the variables used in tables 6 through 8 and provides descriptive statistics for each. *Realization rate* equals the amount paid to preferred stock in connection with the acquisition divided by preferred stock's cash-flow rights; *Carveout (Y/N)* is a binary dependent variable which equals 1 if common stock received a carveout payment and 0 otherwise; *Carveout ($)* measures the amount received by common stock in excess of contractual priority (i.e. the carveout) in millions of dollars; *Board blocking* equals 0 if the VCs control more than half the board seats on a de facto basis at the time of sale and 1 otherwise; *Founder CEO* is a dummy equal to 1 if a founder was the CEO at the time of sale and 0 if a professional CEO had been appointed; *California* equals 1 if the company was incorporated in California at the time of sale; *Rounds of Financing* measures the number of rounds of VC financing; *Total Invested* equals the total amount invested in the company prior to sale (in millions of dollars); *Serial Entrepreneur* is a dummy variable set to 1 if one of the company's founders had previously founded another company, and 0 otherwise; *Management Bonus (%)* records the sum of any non-retention bonuses awarded to the startup's employees in connection with the sale as a percent of the sale price; *Public Acquirer* equals 1 if the acquirer was publicly traded at the time of sale, and 0 otherwise; *VC age* is a proxy for VC reputation and is set equal to the year the startup was acquired minus the average year in which the company's lead VC investor(s) were founded; *Profit* is a dummy equal to 1 if the sale price was greater than the amount invested in the company, and 0 otherwise; *Washout* equals 1 if the liquidation preferences exceed the sale price and 0 otherwise; *Log |Price – LP|* equals the natural log of the absolute value of the difference between the sale price and the aggregate liquidation preferences at the time of the acquisition (in millions); *Wilson* is a dummy variable that equals 1 if the startup company was represented by Wilson Sonsini Goodrich & Rosati at the time of the acquisition; *Cooley* is a dummy variable that equals 1 if the startup company was represented by Cooley Godward at the time of the acquisition; *Venture Law* is a dummy variable that equals 1 if the startup company was represented by Venture Law Group (now part of Heller Ehrman) at the time of the acquisition.

Variables	Mean	Median	SD
Dependent Variables			
Realization rate	.97	1	.06
Carveout (Y/N)	.26	0	.44
Carveout ($)	.97	0	2.37
Power Variables			
Board blocking	.36	0	.48
Founder CEO	.31	0	.47
California	.36	0	.48
Control Variables			
Rounds of financing	3.14	3	1.13
Total invested	46.28	35.1	38.39
Serial Entrepreneur	.47	0	.51
Management Bonus (%)	.025	0	.041
Public Acquirer	.66	1	.48
VC age	16.93	15.7	10.15
Profit	.29	0	.46
Washout	.74	1	.44
Log |Price – LP|	2.92	2.75	1.28
Wilson	.24	0	.43
Cooley	.14	0	.35
Venture Law	.14	0	.35

Table 5: Pairwise Correlation Matrix

The table below shows pairwise correlations among the variables in a sample of 42 VC-backed firms sold in 2003 or 2004. With 42 observations correlations greater than .30 in absolute value are significant at the 5% level and correlations greater than .39 in absolute value are significant at the 1% level. Correlations significant at the 5% level or better are highlighted in bold. Definitions and summary statistics for each variable are provided in table 4.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Board blocking	-																	
2	Founder CEO	.25	-																
3	California	-.24	**-.39**	-															
4	Rounds of Financing	-.18	**-.31**	.13	-														
5	Total invested	.13	-.06	.05	**.39**	-													
6	Serial Entrepreneur	.28	.19	**-.31**	-.16	-.13	-												
7	Management Bonus (%)	-.07	.09	-.14	.07	.04	-.03	-											
8	Public Acquirer	.21	.15	-.11	.00	.25	-.03	.27	-										
9	Profit	**.30**	.26	-.03	**-.41**	-.01	.14	**-.31**	.22	-									
10	Washout	-.23	-.07	-.12	.27	-.08	-.08	.29	-.19	**-.82**	-								
11	Log |Price – LP|	.02	.05	-.03	-.12	.21	-.02	-.18	.13	.22	-.15	-							
12	Wilson	.05	-.01	-.07	.18	-.09	.14	.07	**-.32**	-.23	.08	-.20	-						
13	Cooley	-.16	-.13	.12	-.11	.16	**-.39**	-.14	.14	-.11	.09	**.31**	-.23	-					
14	Venture Law	.26	.17	-.16	.01	-.16	.02	-.13	.14	.04	-.07	.01	-.23	-.17	-				
15	VC age	**.36**	-.15	-.10	-.04	-.13	.11	-.04	-.05	.01	.05	-.04	-.04	-.18	.21	-			
16	Realization rate	**-.35**	**-.45**	.08	.10	.18	-.16	-.24	**-.30**	-.20	-.08	.18	.24	.18	-.21	.10	-		
17	Carveout (Y/N)	.23	**.30**	.01	.02	-.13	-.13	.18	**.31**	.10	.11	-.26	-.21	-.24	**.38**	-.17	**-.74**	-	
18	Carveout ($)	**.36**	**.45**	.04	-.07	-.06	.14	.03	.29	**.34**	-.09	-.14	-.23	-.17	.13	-.17	**-.80**	.70	-

Table 6: Multivariate Regression

This table reports ordinary least squares regressions on a sample of 42 VC-backed firms sold in 2003 or 2004. The dependent variable in each regression is *Realization rate*, which measures the fraction of the VC's cash-flow rights that was actually paid to the VCs. All explanatory variables are defined in Table 4. Heteroskedastic-robust (White, 1980) standard errors are reported in parentheses below each coefficient estimate. We use a 2-sided test for statistical significance.

	OLS				
	(1)	(2)	(3)	(4)	(5)
Power Variables					
Board blocking	-.037*	-.055*	-.055*	-.060*	-.052**
	(.019)	(.022)	(.020)	(.025)	(.017)
Founder CEO	-.060**	-.050*	-.035*	-.035*	-.020
	(.022)	(.020)	(.014)	(.017)	(.014)
California	-.021*	-.028*	-.035*	-.034*	-.021
	(.012)	(.016)	(.017)	(.017)	(.014)
Control Variables					
Rounds of Financing		-.011	-.012*	-.014*	-.010
		(.007)	(.006)	(.006)	(.006)
Total Invested		.0006**	.0005**	.0005*	.0006*
		(.0002)	(.0002)	(.0002)	(.0002)
Serial Entrepreneur		-.008	-.010	-.014	-.002
		(.017)	(.017)	(.019)	(.014)
Management Bonus (%)		-.318	-.330	-.406	-.344
		(.327)	(.340)	(.316)	(.318)
Public Acquirer		-.029	-.028	-.014	-.032*
		(.018)	(.018)	(.018)	(.016)
VC Age		.0013*	.0016*	.0018*	.0021*
		(.0007)	(.0007)	(.0007)	(.0008)
Profit			-.102*	-.092*	-.112**
			(.041)	(.046)	(.032)
Washout			-.103*	-.092*	-.118**
			(.039)	(.044)	(.029)
Log |Price – LP|			.008*	.009*	.011*
			(.004)	(.005)	(.004)
Wilson				.036	
				(.022)	
Cooley				-.001	
				(.023)	
Venture Law				-.014	
				(.033)	
Industry Dummies	N	N	N	N	Y
Constant	1.011	1.032	1.116	1.095	1.059
	(.007)	(.030)	(.048)	(.059)	(.041)
R^2	.28	.48	.65	.71	.73
No. of Observations	42	42	42	42	42

*= 10% significance; **=1% significance [2-sided test]

Figure 3

Using a sample of 42 VC-backed firms sold in 2003 or 2004, figure 3 shows the *realization rate* for each firm in relationship to an index of common stockholder power. The index is created by summing the shareholder power variables for each firm: *California, Founder CEO,* and *Board blocking*. The resulting common stockholder power index ranges from 0 to 3, with higher scores representing greater holdup power. The fitted line illustrates that increasing common stock's holdup power predicts a lower realization rate. Since 31 firms have a realization rate of 1, this diagram plots several points directly on top of each other. Of the 31 firms with a realization rate of 1 there are 8 with a common stock power index of 0, 19 with a common stock power index of 1, and 4 with a common stock power index of 2.
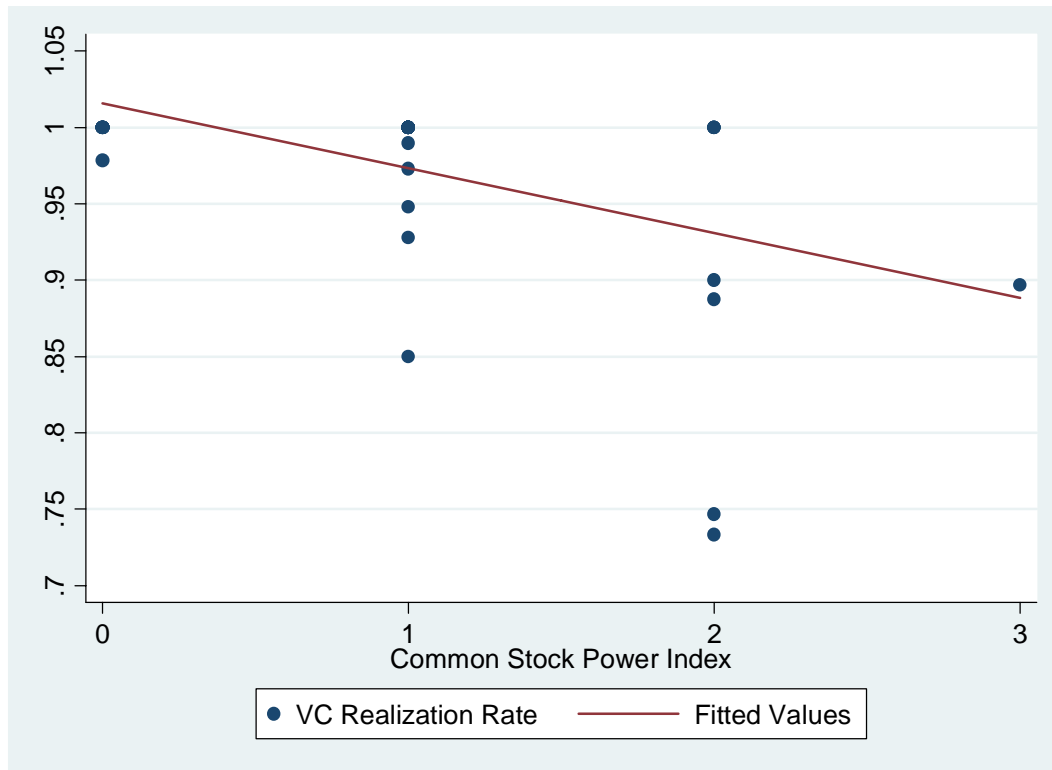
Table 7: Alternative Measurement of Deviation

This table reports ordinary least squares ('OLS') regressions on a sample of 42 VC-backed firms sold in 2003 or 2004. Model 6 uses OLS to estimate deviations from contractual priority in millions of dollars, and the dependent variable is *Carveout ($)*. Model 7 uses a linear probability model (OLS) to estimate a binary dependent variable, *Carveout (Y/N)*, which equals 1 if a carveout payment was awarded to common stock and 0 otherwise. All explanatory variables are defined in Table 4. Heteroskedastic-robust (White, 1980) standard errors are reported in parentheses below each coefficient estimate. We use a 2-sided test for statistical significance.

	OLS	
	Carveout ($)	Carveout (Y/N)
	(6)	(7)
Power Variables		
Board blocking	1.977**	.379*
	(.659)	(.142)
Founder CEO	1.626*	.168
	(.681)	(.145)
California	1.748*	.179
	(.784)	(.145)
Control Variables		
Rounds of Financing	.533*	.095
	(.242)	(.065)
Total Invested	-.012*	-.004**
	(.005)	(.001)
Serial Entrepreneur	.365	-.187
	(.647)	(.128)
Management Bonus (%)	2.065	.953
	(4.593)	(1.691)
Public Acquirer	.988*	.246*
	(.447)	(.139)
VC age	-.066*	-.013*
	(.025)	(.006)
Profit	4.032*	.600**
	(2.018)	(.203)
Washout	3.442*	.641**
	(1.950)	(.206)
Log |Price – LP|	-.341	-.087*
	(.211)	(.041)
Constant	-4.462	-.385
	(2.168)	(.323)
R^2	.65	.57
No. of Observations	42	42

*= 10% significance; **=1% significance [2-sided test]