

Intermediaries in Negotiations of Complex Contracts: The Role of Attorneys in Venture Capital Transactions

by

Ola Bengtsson*

First draft: September 2008

This draft: March 2009

Abstract

I show that intermediaries can affect the design of financial contracts by reducing asymmetry in contracting parties' knowledge about complicated and interrelated contract contingencies. Across 908 contracts used in venture capital (VC) transactions, entrepreneurs counseled by attorneys with high VC expertise sign contracts with fewer investor-friendly cash flow contingencies, particularly entrepreneurs with less knowledge of such contracts. This finding does not hold for attorneys with high general expertise, which underscores the intermediary's role of providing information about a specific type of complex contract. The results are likely to reflect a causal association because I do not observe that law firms with more VC expertise systematically counsel venture-backed companies of higher quality.

*Cornell University. Contact information: lob2@cornell.edu. I thank Vic Anand, Joseph Bartlett, Warren Bailey, Yelena Larkin, Roni Michaely, and Berk Sensoy as well as seminar participants at DePaul/Federal Reserve Bank of Chicago and Cornell University for helpful comments. I am grateful to *VCExperts* and Joseph Bartlett for access to the contract data, and to Neely Tang and Bonny Lee for providing valuable research assistance. All remaining errors are my own.

“[I]n the majority of situations, the [entrepreneur] client will not understand most of the deal terms that are being proposed. Therefore, it is up to me to explain what it means to have a “full ratchet,” for example, or what an investor redemption right involves. Indeed, there is generally a big difference in what venture capitalists understand and what your typical entrepreneur understands going into a venture capital deal.”

Bart Greenberg, Attorney of Manatt, Phelps & Philips LLP ¹

A rich theoretical literature demonstrates how financial contracts should be optimally structured in order to promote the welfare-improving behavior of the contracting parties.² Much of contract theory emphasizes the role of contractual contingencies in addressing incentive problems endemic to many situations. Although complicated and interrelated contractual contingencies clearly have important benefits, they could be associated with cognition efforts and computational costs for the contracting parties. Dye (1985), Anderlini and Felli (1994, 1999, 2004), Battigalli and Maggi (2002), and more recently Tirole (2008) model these costs and argue that they could partly explain the use of relatively simple contracts in many real-world settings.

Computational costs could also give rise to problems in situations where complex financial contracts are being negotiated.³ One contracting party may have less knowledge of the meaning of complicated contractual terms than the other party, or may be less able to compute the payoff distribution of the contract when a variety of contingencies are included. The more knowledgeable party has an advantage during contract negotiations because she can, under the guise of a large number of esoteric terms, propose cash flow contingencies that give her significant payoffs in certain

¹ This quote is from Falls (2008) p. 45.

² Notable examples of financial contracting theories are Townsend (1979), Harris and Raviv (1979, 1992), Gale and Hellwig (1985), Diamond (1991), Bolton and Scharfstein (1990), Aghion and Bolton (1992), Dewatripont and Tirole (1994), Hart and Moore (1994, 1998), and Hart (1995, 2001).

³ As discussed in Eggleston, Posner and Zeckhauser (2000), a contract can be considered complex if it includes a rich set of contingencies, implies highly variable payoffs, or has considerable cognitive costs associated with calculating payoffs. In our context, a contract is also complex if the contractual terms are defined using esoteric terminology or if there is significant cross-sectional variation in the use of important terms.

states of the world. Even if the less knowledgeable party may realize that the complex contract includes some onerous cash flow contingencies, high computational costs inhibit him from identifying and focusing his effort on negotiating the relevant ones.

In this paper I argue that this asymmetry in knowledge and information about complex contracts affects the outcome of contract negotiations, except when the less knowledgeable contracting party receives help from an intermediary who is specialized in deciphering and negotiating such contracts. I provide supportive empirical evidence for this thesis by studying the informational role played by attorneys who advise entrepreneurial companies in Venture Capital (VC) transactions.

The VC setting is ideal for testing my argument that intermediaries can affect contract design by alleviating the knowledge asymmetry of the contracting parties. Contracts used in VC transactions are by nature very complex and VCs are typically much more knowledgeable than entrepreneurs about the contractual terms used in VC transactions (Kaplan and Strömberg (2003)). Indeed, evidence from interviews suggests that attorneys help entrepreneurs to overcome such asymmetry of knowledge by actively counseling their start-up company clients. Attorneys explain the meaning of the contractual terms that are specific to the VC setting and emphasize which cash flow contingencies will most determine the fraction of future payoffs given to the VC firms when the investment is exited. Attorneys also comment on how the proposed contract overall compares with other contracts used in similar financing situations and, in some cases, conduct the actual contract negotiations with the VC firms on behalf of their client.

My empirical analysis is based on a sample of contracts from 908 recent U.S. VC transactions. I present a number of findings that are consistent with the idea that the information provided by expert attorneys can affect the design of VC contracts. First and foremost, I show that companies advised by attorneys with high expertise on VC transactions are more likely to sign contracts with fewer investor-friendly cash flow contingencies such as cumulative dividends, participation rights and redemption rights.

As an illustration of the economic relevance of advice from attorneys, the investor-friendliness of a contract (as measured by the index I construct) is one-third of a standard deviation lower for companies that are represented by the most expert law firm in my sample (Wilson Sonsini Goodrich & Rosati) than for companies represented by other attorneys. I estimate that the financial benefits of having an attorney with high VC expertise could be considerable for entrepreneurs: the less investor-friendly design of one of the six contractual provisions that I study, cumulative dividends, is associated with approximately a \$60,000 lower payoff to VCs per \$1 million invested in the company. This corresponds to about \$700,000 for the average company in my sample.⁴ Importantly, this benefit does not seem to be offset with a lower price paid by the VC for its equity because I do not observe that companies represented by expert legal counsel receive lower pre-money valuation numbers.

The result that contract design varies with the attorney's VC expertise survives a battery of controls that capture company, founder, financing round and VC characteristics. Moreover, I find no evidence that companies advised by attorneys with more VC expertise are older, have more experienced founders, raise larger round amounts, or outperform companies advised by less expert attorneys. From this I infer that it is unlikely that attorney expertise level is a proxy for observable or unobservable company quality that may correlate with the use of less investor-friendly cash flow contingencies. Rather, the empirical association that I observe between attorney VC expertise and contract design is likely to reflect a causal effect of attorney expertise.

As additional evidence supporting my thesis that attorneys help entrepreneurs by alleviating knowledge differences pertaining to contract design, I show that the association between attorney VC expertise and the use of less investor-friendly cash flow contingencies is stronger when the entrepreneur has less personal experience of contract negotiations with VC firms. Specifically, expert attorneys matter more when a company negotiates its first financing round or when an entrepreneur has not previously founded a venture-backed company.

⁴ As described in Section VI.B, these dollar figures are based on simplified calculations and should therefore be viewed primarily as an illustration of the economic importance of attorneys in VC transactions.

Furthermore, the finding that the use of cash flow contingencies in VC contracts does not vary with the general expertise of the entrepreneur's law firm strengthens the argument that attorneys help by providing knowledge and information specifically related to VC contract negotiations. Thus, attorneys do not appear to affect contract design by providing general knowledge about contracts, certifying their clients, or bringing refined bargaining skills to the negotiation table.

In light of the documented benefits for entrepreneurs of receiving advice from attorneys with high VC expertise, it is puzzling that not all entrepreneurs choose to hire the most expert attorneys. Although the majority of entrepreneurs in my sample appear to make such an optimal choice, a large number of venture-backed companies are counseled by attorneys who do not have high VC expertise. I discuss various explanations for this phenomenon, including differences in lawyers' fees, and conclude that the most compelling reason is that some entrepreneurs are simply unaware that attorney expertise is an important determinant of the outcome of contract negotiations. As I emphasize in this paper, entrepreneurs typically do not understand either the precise implications of every contractual term or how a proposed set of terms compares with those of other contracts used in similar VC financing situations. Lacking such knowledge, it is plausible that some entrepreneurs simply are unaware of an empirical relationship between law firm VC expertise and contract design.

My work is related to the literature that studies empirically how intermediaries, such as banks, VCs and IPO underwriters, overcome knowledge and information problems in finance.⁵ Previous studies have focused on how intermediaries can affect the design of financial contracts by overcoming information asymmetries related to the attributes that the contract is structured to regulate (for example, the manager's talent, the value of a project's assets-in-place, or its growth opportunities).⁶

⁵ The number of relevant empirical papers on other type of intermediaries is too large to be reviewed here. Evidence on IPO underwriters is found in Rock (1986), Carter and Manaster (1990), and Hoberg (2007), on banks in Petersen and Rajan (1994), and on VCs in Lerner (1995) and Hellmann and Puri (2002).

⁶ Studies of bank loan contracts show that relational lending, for which information problems are likely to be smaller than for arms-length lending, is associated with lower interest rates (Petersen and Rajan (1994), Berger and Udell (1995), Hellmann, Lindsey and Puri (2008), Bharath et al. (2008), and Ivashina and Kovner (2008)) and fewer covenants (Drucker and Puri (2008)). VCs who are better able to overcome

This paper is, to the best of my knowledge, the first to show that intermediaries can affect contracting outcomes by alleviating asymmetric information problems associated with contract *design*. Since complex financial contracts are commonly viewed as a good solution to information and agency problems, my findings are important because they underscore that such solutions can give rise to an information problem pertaining to the understanding of the contract. This problem is likely to be relevant for other situations in which complex contracts are negotiated and at least one of the contracting parties faces high cognition efforts or computational costs. Examples include negotiations of leasing contracts, university licensing agreements, and contracts for strategic alliances.

By providing large-sample evidence on the role of attorneys, this paper also adds to studies of how attorneys affect business transactions. Whereas previous studies have studied how attorneys affect the outcome of contract disputes (Block and Stieber (1987), Ashenfelter and Bloom (1993), and Harcourt (2000)), this paper shows that attorneys also can affect negotiations of contracts.

Finally, I contribute to the small but growing literature that studies the determinants of contracts used in VC transactions (Sahlman (1990), Suchman (1994), Gompers (1999), Kaplan and Strömberg (2003, 2004), Lerner and Schoar (2005), Kaplan, Martel and Strömberg (2007), Bottazzi, Da Rin and Hellmann (2008), Bengtsson and Sensoy (2009), and Bengtsson and Ravid (2009)). While previous studies have investigated how company characteristics, VC characteristics or institutional factors affect contract design, my findings show that contracts are also influenced by characteristics of the entrepreneur's attorney.

The remainder of the paper is organized as follows. Section I describes findings from previous research on how contracts used in VC transactions are designed. I discuss how the use of complicated contract contingencies can give rise to asymmetry in the contracting parties' knowledge and information about complex contracts. In Section II, I explore how attorneys in VC transactions could, as intermediaries, affect contract design by playing an informational role in negotiations of complex

agency and information problems use contracts with fewer investor-friendly cash flow contingencies (Bengtsson and Sensoy (2009)).

contracts. I then construct testable empirical predictions on the association between attorney expertise and contract design. Section III presents the sample, Section IV outlines the empirical results, and Section V discusses alternative explanations. Section VI addresses the question of why not all venture-backed companies choose to be advised by legal counsel with high VC expertise. Section VII concludes.

I. Overview of VC Contracts

A. Importance of VC Contracts

The VC industry has been the subject of increasing academic attention as a setting for empirical research. This attention is due in part to the remarkable success of many venture-backed companies, including FedEx, Apple Computer, AmGen, Microsoft and Google, and by the sheer size of this capital market. In 2007, VC funds managed \$257 billion and invested about \$30 billion in more than 3,000 unique startup companies.⁷ As shown in Figure 1, the amount invested annually by VC firms is approximately of the same magnitude as the amount raised by newly listed companies during the IPO. Although the size of the U.S. VC market has been similar to that of the U.S. IPO market, the role of intermediaries has thus far been studied considerably more extensively in the latter setting in studies of IPO underwriters.

The VC industry has also received research attention because—in addition to its growing economic importance—it arguably provides a good empirical testing ground, particularly with respect to theories of financial contracting (Hart (2001) and Kaplan and Strömberg (2003)). The financing of innovative fast-growing companies is plagued by considerable agency and information problems. VC firms are sophisticated investors who, as a response to their strong monetary and reputational incentives, make use of many different mechanisms, including complex financial contracts, to overcome such problems.

⁷ These statistics are reported by the National Venture Capital Association.

B. Design of VC Contracts

Suchman (1994) examines 108 contracts that were entered into by two large Silicon Valley VC firms between 1975 and 1990. Suchman's data reveal that VC contracts have a complex design because they give investors several esoteric and interrelated cash flow contingencies. Suchman shows that while contracts had relatively idiosyncratic design in the 1970s, they evolved throughout the 1980s into more standardized templates. With such templates, contracts differ in their use of various cash flow contingencies but not with respect to how a contingency, if present, is structured.

Sahlman (1990) characterizes the typical VC contract template and observes that VCs receive convertible preferred stock with attached contractual terms such as liquidation preference, cumulative dividends, redemption rights and anti-dilution protection.⁸ Cumulative dividends and liquidation preference jointly specify what fixed amount VC firms have the right to receive before any distributions are made to other shareholders. Redemption rights give the VC firm the right to sell back their shares to the company on a predetermined schedule, which typically starts five years after the contract is signed. Anti-dilution protection gives the VC firm the right to receive additional shares if the company secures a follow-up investment round where the valuation of the company has declined from the previous round ("down-round").⁹

Gompers (1999) studies contracts from 50 VC investments between the late 1970s and the early 1990s. His findings show that the convertible preferred stock given to VCs almost always includes a contingency called "automatic conversion" in which the convertible preferred stock automatically converts to common stock if the company goes public at a high valuation.

The most comprehensive characterization of VC contracts comes from Kaplan and Strömberg (2003, 2004) who examine a sample of 213 contracts, the majority of which were entered into during the late 1990s. Their analysis confirms the finding of Sahlman (1990) and Gompers (1999) that contracts almost exclusively give VCs convertible preferred equity, but also reveals that participation

⁸ See Appendix A for a list of the most commonly used contractual terms in VC contracts.

⁹ See Table I.C for a detailed description of contractual terms.

rights are attached in about half of contracts that use preferred equity. Participation rights increase the payoff to VCs by giving the investor both a repayment of her invested capital and a fraction of the remaining common equity. Contracts may also include pay-to-play provisions, according to which the VC firm has a contractual right to cash flow contingencies only if the firm also invests in follow-up financing rounds.

Overall, the empirical evidence of Suchman, Sahlman, Gompers, and Kaplan and Strömberg illustrates that the contractual payoff to VCs depends on a large number of complex cash flow contingencies, the implications of which are interrelated and tied to the realization of different types of intermediate or final company outcomes.¹⁰

C. Illustration of Contract Complexity

As a highly stylized illustration of the importance of contractual cash flow contingencies, consider a VC investment of \$5 million in which a VC holds 30% of the company's equity. If the company were sold for \$20 million after three years, the VC's payoff would be \$6 million if the contract gave investors "plain" convertible preferred stock. The VC's payoff would be \$13.9 million, or 70% of the selling price, if the contract gave investors preferred stock with participation rights, a 2X liquidation preference and 8% compounding cumulative dividends.¹¹ Thus, these additional cash flow contingencies increase the VC's payoff by almost \$8 million. If, however, the VC instead was to receive 60% of the company's equity, this difference would shrink to \$4.5 million (\$12 million for convertible preferred versus \$16.5 million for participating preferred). Thus, the use of cash flow contingencies is associated with considerably higher payoff and, importantly, the value of cash flow contingencies depends on many other factors such as the VC's ownership, the selling price of the company, and the time of exit.

¹⁰ Appendix A provides a list of the 35 most common deal terms used in VC contracts.

¹¹ See Metrick (2007, pp. 163-178, 252-303) for a method of calculating the payoff implications of various cash flow contingencies attached to preferred stock in VC transactions.

D. Asymmetry in Knowledge of VC Contracts

The prevalent use of esoteric terminology in VC contracts could make it difficult for a contracting party to understand the meaning of each contractual term. More importantly, because all contingencies are interrelated and depend in complex ways on the probability distribution of various states of the world, it could become prohibitively costly for an uninformed or boundedly rational agent to compute the joint payoff implications from different cash flow contingencies.

The computation of contract payoffs is, in general, no major hurdle for VC firms. As reported by Zarutskie (2008), most partners at VC firms hold MBA degrees from high-ranking universities and many have prior experience in finance, either as prior employees of other VC firms or from holding other non-venture finance positions. VC partners negotiate contracts on a regular basis – a typical VC firm makes about a dozen investments per year, either in new portfolio companies or in follow-up rounds of existing portfolio companies. VC partners who have spent at least part of their career in the venture business have also observed how different contractual terms affect realized payoffs when a portfolio company realizes an exit event.¹² The knowledge of one VC firm can spread to other VC firms through a number of channels, including when VC firms invest together in syndicated investments (Hochberg, Ljungqvist and Lu (2007), and Kaplan, Martel, and Strömberg (2007)).

In contrast to VC firms, founders and CEOs of start-up companies (henceforth referred to as “entrepreneurs”) face major hurdles when trying to understand contract implications. Entrepreneurs typically focus their expertise on pursuing innovation and transforming ideas into commercially viable products or services, not on negotiating the terms of complex contracts. The entrepreneur’s first hurdle is therefore to decipher the financial meaning of esoteric contractual terms such as “broad-based weighted-average anti-dilution”. Although there are books and web sites devoted to explaining the design of VC contracts, the explanations of specific contractual terms are neither precise nor complete. Consider the following typical explanation of broad-based weighted-average anti-dilution:

¹² The contractual division of payoffs may not always reflect the actual division of payoffs. Broughman and Fried (2008) show that VCs sometimes receive less than their contractually liquidation preference at exit.

*“A weighted average ratchet adjusts downward the price per share of the preferred stock of investor A due to the issuance of new preferred shares to new investor B at a price lower than the price investor A originally received. Investor A's preferred stock is repriced to a weighted average of investor A's price and investor B's price. A broad-based ratchet uses all common stock outstanding on a fully diluted basis (including all convertible securities, warrants and options) in the denominator of the formula for determining the new weighted average price.”*¹³

While this explanation describes the major features of this version of investor anti-dilution protection, it does not outline the exact implications on payoffs. Such financial implications are hard to compute because the increase in the VC firm's payoff from broad-based weighted-average anti-dilution depends on the probability distribution of company outcomes, investment amounts and share prices in different rounds, the VC's ownership stake, type of convertible preferred stock, cumulative dividends, etc.

Another hurdle for the entrepreneur is to understand how VC contracts evolve as the company secures follow-up financing rounds. Most venture-backed companies raise more than one round of financing, sometimes from the VC firms who invested in the previous round and sometimes from new VC firms. Each round has a new contract negotiation but the contract from the previous round is commonly used as the starting document. The design of contracts from previous rounds is sometimes amended or renegotiated if new investors set this as a condition for infusing new money into the company.

The entrepreneur's final hurdle is to have reasonable expectations about what should go into a contract. The structure of negotiated contracts varies with characteristics of the company and entrepreneur (Gompers (1999), and Kaplan and Strömberg (2003, 2004)), the VC firm's experience and network strength (Bengtsson and Sensoy (2009)), and the geographical location of either the company or of the lead VC in the round (Bengtsson and Ravid (2009)). These systematic variations in the contract design make it harder for entrepreneurs to assess whether a VC firm's demands are

¹³ This quote is collected from the VCExperts web site (www.vcexperts.com).

reasonable or an attempt to extract valuable cash flow contingencies. A good example is cumulative dividends and redemption rights, which both are uncommon in contracts signed by VC firms that are headquartered in Silicon Valley but are frequently used by VC firms located in other U.S. regions. With such differences, the entrepreneur's chances to convince the VC firm to exclude cumulative dividends and redemption rights from the contract is likely to be higher if the VC firm is located in Silicon Valley.

In summary, the evidence reviewed in this section supports our thesis that contracts used in VC transactions are complex and that entrepreneurs have an informational and knowledge disadvantage when negotiating such contracts with their VC investors.

II. The Role of Intermediaries in Negotiations of Complex Contracts

A. The Informational Role of Attorneys

The asymmetry in the entrepreneur's and VC firm's knowledge about cash flow contingencies used in complex contracts creates a demand for intermediaries. Intermediaries are able to specialize in transmitting information and knowledge that is prohibitively costly, or even impossible, for each individual market participant to obtain. In the VC industry, attorneys serve as intermediaries and perform different informational tasks, each of which helps the entrepreneur to negotiate a contract with fewer investor-friendly cash flow contingencies.¹⁴

Before the negotiation process commences, the attorney briefs his client on what a reasonable VC contract looks like and then describes the meaning of the various contractual terms. Emphasis is put on the cash flow contingencies that have the most significant payoff implications, and on the terms that could actually be negotiated. The attorney also gives information about what happens to existing contracts when a company raises follow-up financing from VCs. Attorneys have observed the

¹⁴ The discussion in Section II is based partly on my own interviews with representatives of VC firms, entrepreneurs and attorneys, and partly on interviews with attorneys presented in Falls (2008). Specific comments on how attorneys provide information to entrepreneurs can be found in Falls (2009) on pages 45, 55, and 114, and comments on why some attorneys can better provide such information can be found on pages 91, 119, 152, and 153.

evolution and renegotiation of contracts and can convey this knowledge to entrepreneurs who themselves have had no opportunity to observe the life-cycle dynamics of contracts. The final informational task of an attorney is to comment on what he believes would be a reasonable “market” contract for the company he is currently representing. This benchmarking is important due to the considerable systematic variation in VC contracts and the overall difficulty of calculating exact payoff implications.

The negotiation process typically begins with the prospective VC investors presenting the entrepreneur with a proposed contract. The entrepreneur’s attorney dissects this document carefully, removes certain contractual terms, and then sends the contract back marked up with the suggested changes. A typical negotiation often involves multiple rounds in which the entrepreneur’s counsel and the VC send edited contract proposals back and forth. Most VCs also use attorneys who participate in this process, but the VC’s attorneys typically take a more passive role before and during negotiations, and instead work mostly on drafting the legal documentation after the negotiation is concluded. When the VC and the entrepreneur finally sit down for the concluding negotiation, which will result in the actual signing of the contract, the entrepreneur’s counsel is present and either gives advice to his client or sometimes even negotiates directly with the VC.

B. Difference in Attorney Ability to Convey Information

Providing an entrepreneur with information about contractual terms and negotiation is different from the tasks usually performed by attorneys, such as translating negotiated agreements into legal documents. To do it, attorneys must have specialized knowledge about the ins and outs of how VC contracts work and how they are negotiated. Attorneys are unlikely to have such expertise unless either they have personal work experience with this specific type of complex contract or they work for a law firm that has built up institutional knowledge about VC transactions.

The most important way attorneys obtain knowledge about contracts is learning-by-doing. Experienced attorneys who have counseled a large number of venture-backed companies have had

ample opportunities to study and compare contracts, and to learn which contractual terms are most likely to be negotiated away in a particular situation. Also, attorneys who have represented many venture-backed companies at their exit events (IPO or acquisition) have observed how various contractual terms affect how the exit proceeds are split between the VC firms and other shareholders. The more exposure to VC transactions the attorney has had, the better his understanding is likely to be about what matters in contract negotiations.

Another channel through which attorneys obtain information about contract negotiations is prior work as counsel for VC firms. Attorneys who have been on the other side of the negotiation table have observed how VC firms evaluate different contract terms and have seen what negotiation tactics VC firm partners employ to convince entrepreneurs to sign investor-friendly contracts. Finally, some large law firms collect and analyze their own data on VC contracts.¹⁵ The access to data from similar transactions, surveys, and market studies allows the attorney to give his entrepreneur client benchmarking information.

C. Empirical Predictions on VC Contract Design

Overall, the discussion presented here supports our thesis that attorneys can play an active informational role in negotiations of VC contracts if they have the knowledge about how such contracts work. Some attorneys have more expertise than others in advising entrepreneurs in contract negotiations. Experienced attorneys who are specialized in VC transactions have had more opportunities to participate in negotiations, have spent more hours analyzing the meaning of different contractual terms, and have access to a larger number of benchmark contracts.

If my thesis -- that intermediaries play an informational role in negotiations of complex contracts -- is correct, attorneys with more VC expertise should be able to help entrepreneurs negotiate contracts with fewer investor-friendly cash flow contingencies. This relationship is my first

¹⁵ One notable example is Fenwick & West, which produces a publicly circulated quarterly analysis of contractual terms in the Bay Area and in Silicon Valley (available at www.fenwick.com/publications/).

empirical prediction. The exclusion of investor-friendly contractual provisions should depend more on the attorney's VC expertise in situations where the entrepreneur has less knowledge about VC contracts. This subsample difference is my second prediction. Finally, if attorneys affect contract design by providing information about a specific type of complex contract, cash flow contingencies should not be less prevalent for companies counseled by attorneys who have high general expertise but not high VC expertise. This is my third prediction.

III. Data

A. Sample

In collaboration with *VCExperts*, a company that collects and analyzes VC data, I use mandatory legal filings to collect detailed data on the contract that was negotiated between a private venture-backed company and its VC investors.¹⁶ Although cost considerations limit me to extract legal filings for a subset of all U.S. venture-backed companies, the sample is random in the sense that I do not systematically extract contracts for a certain type of entrepreneur, company, or VC firm. I match each contract with its corresponding financing round using information from *VentureEconomics*, one of the largest and most reliable providers of data on VC investments, and I create variables that capture characteristics of the founder, company, VC firm, and financing round.

The final sample includes contracts from 908 unique U.S. venture-backed companies. As illustrated by the summary statistics in Table I.A, the sample reflects the U.S. VC industry with about half of all companies being headquartered in California and two thirds operating in either life science or high-technology industries. The high frequency of California companies reflects a sample bias that companies located in this state are more likely to be counseled by one the prominent law firms in the VC industry, which as discussed in Section III.C are overrepresented in my sample. I address this location bias by controlling for company state in all multivariate tests. One in four companies has a founder who has previously started a venture-backed company, and 7% has a founder who has

¹⁶ I appreciate the help of Joseph Bartlett, Cory Buecker and Justin Byers in obtaining this data.

previously started a venture-backed company that realized an IPO. The average company is 4 years old, has raised 1.8 prior rounds of financing and receives \$12 million in the new round.

[place Table I.A here]

About half of all lead VCs are headquartered in California and the average number of VCs in the round is 4.3. The average lead VC firm is 15 years old and has invested in 136 portfolio companies prior to the contract negotiation. I infer from these statistics that most VCs in the sample have had ample opportunities to negotiate contracts with entrepreneurs and have observed the ultimate payoff implications of different cash flow contingencies.

B. Contractual Cash Flow Contingencies

I code each of the 908 contracts along six important cash flow contingencies: cumulative dividends, liquidation preference, participation rights, anti-dilution protection, redemption rights, and pay-to-play provisions.¹⁷ These six contractual terms jointly determine what cash flow contingencies are given to preferred shareholders. As shown by Kaplan and Strömberg (2003), most terms that are included in VC contracts are favorable to the VC and especially favorable if company performance is bad.

I follow the coding scheme developed by Bengtsson and Sensoy (2009) and code redemption rights as 0 or 1 and the other contract terms as 0, 1 or 2 based on how favorable they are to the VC.¹⁸ Table I.C outlines the coding scheme and presents statistics on the frequency of each cash flow contingency. A higher value means that the contract is friendlier for the VC firms that invest in the round. The exact meaning and frequency of each contractual term is described in Table I.C. I

¹⁷ It is debatable whether redemption rights, which give the VC the right to sell their shares back to the company after a predetermined time period, should be coded as a cash flow contingency or a control right. I code it as a cash flow contingency since it gives investors a valuable option to redeem. All results are qualitatively similar if I exclude redemption rights from the analysis.

¹⁸ The exception is pay-to-play, which does not favor the VC. I solve this by coding pay-to-play inversely.

aggregate the six cash flow contingency variables to an index that, in order to maintain consistency with the terminology used by Bengtsson and Sensoy (2009), I denote as Downside Protection Index (DPI). DPI can take any value between 0 and 11, where 0 is a contract that includes a minimum of investor-friendly cash flow contingencies and 11 is a contract that includes all possible investor-friendly cash flow contingencies. The average DPI is 4.64 and the standard deviation is 1.54. Figure 2 presents a histogram of DPI for the sample.

[place Table I.B here]

C. Attorney Expertise and Selection Issues

I use company and attorney web sites, data from *VCExperts* and legal filings to identify the law firm or self-employed attorney that represents each venture-backed company. The sample is restricted to companies for which I can identify an outside legal advisor. Because large established law firms are more likely than self-employed attorneys to publish data on which companies they represent, the sample is biased towards venture-backed companies that are counseled by large law firms. This selection is, however, likely to bias my test against finding the expected empirical association between attorney expertise and contract design. Less expert attorneys, who appear to list only a handful of their clients, probably report the names of their showcase clients for which the contract negotiation resulted in fewer investor-friendly cash flow contingencies. More expert law firms appear to report almost all their clients, including companies for which the contract negotiation resulted in more investor-friendly cash flow contingencies.¹⁹

It is worth noting that restricting the sample to companies for which I can identify the legal counsel does not significantly affect important company characteristics such as the average dollar

¹⁹ While selection issues affect the absolute values of the variable “Counsel VC # of Deals”, which is my main proxy for counsel VC expertise, they are unlikely to affect the relative values (i.e. differences between different legal counsels) in such important ways that my results are qualitatively affected. As discussed below, the results hold if I use other proxies of counsel VC expertise.

amount raised in the financing round (\$11 million in the full contract sample versus \$12 million in the contract sample with identified legal counsel) or the pre-money valuation (\$47 million versus \$51 million). Thus, this restriction is unlikely to bias the results towards venture-backed companies of a certain size or quality.

Because I am unable to identify the name of the individual attorney who advised the company during contract negotiations, I am limited to conducting my analysis on the law firm level unless an attorney is self-employed. I use the term ‘legal counsel’ to refer to the law firm or self-employed attorney who is hired by the entrepreneur’s company. The final sample of 908 contracts includes 189 unique legal counsels.

I measure each counsel’s expertise on VC transactions using four different proxies. The first proxy is the number of companies in the sample that are advised by the counsel. Table I.B lists the legal counsels who represent the most companies. The two largest law firms are Wilson Sonsini Goodrich & Rosati and Cooley Godward Kronish LLP, which combined represent almost a quarter of all sample companies.²⁰ My second proxy for VC expertise is whether the counsel was one of the 19 law firms ranked as top counsel for U.S. VC transactions by two publishers of law firm intelligence: Chambers & Partners and Legal 500. These rankings are formed by aggregating the views of a large number of attorneys and other individuals who are involved in business transactions. More than half (63%) of the companies in the sample are represented by top-ranked counsel.

[place Table I.C here]

The third proxy for counsel VC expertise is whether the company has a branch office in or around Silicon Valley (51% of all companies). A law firm that lacks a branch office in this region, which by most is viewed as the hotbed of the U.S. VC industry, is less likely to have high expertise on

²⁰ Although these law firms have a large market share, their representation in the sample is, as noted, overstated due to the sample selection bias.

VC transactions. The fourth and final proxy is whether the company has a practice area specializing in either VC or emerging innovative companies (87% of all companies). Lacking this type of practice area is an indication that the law firm has less expertise on VC transactions. The third and fourth proxies are coded using information from the law firms' web sites and *Capital IQ*, an online research tool.

I also measure the level of the law firm's general expertise. The database *ALM Research* provides detailed information about the law firm's revenues, number of lawyers, gross profit margin, revenue per lawyer, and entry salary for new associates. Because 80% of all sample observations are financing rounds from 2006 or 2007, I use data on law firms from 2007.²¹ *ALM Research* only tracks the 200 largest U.S. law firms, ranked by revenues, so I can only measure expertise in detail for 76% of all companies in the sample. The summary statistics show that although three quarters of all venture-backed companies use a top 200 law firm, only 5% are represented by a top 5 firm, and 17% by a top 25 firm.

IV. Empirical Results on Legal Counsel and VC Contracts

A. Univariate Comparison

I first conduct a series of univariate comparisons of my measure of the aggregate investor-friendliness of a contract, DPI, between subsamples formed using the four proxies for counsel VC expertise. Results from this comparison, including the p-values from Wilcoxon rank sum tests, are presented in Table II. I find that the difference in mean DPI between the companies with less VC expertise and those with more VC expertise is statistically significant and economically meaningful for all proxies of counsel VC expertise. To illustrate the economic importance of the results, DPI is 4.36 for companies represented by the "most expert" legal counsel who advises more than the sample median number of companies, is ranked as a top 19 counsel, and has both a VC practice area and a

²¹ The expertise of legal counsel does not vary significantly over time; the American Lawyer 2006 ranking based on revenues has a 0.98 correlation with the 2007 ranking.

branch office in Silicon Valley. This is 0.81 DPI units, or about half a standard deviation, lower than for companies represented by the “least expert” legal counsel who advises fewer than the sample median number of companies, is not ranked as a top 19 counsel, and has neither a VC practice area nor a branch office in Silicon Valley.

[place Table II here]

Table II also reports comparisons between DPI for subsamples formed using proxies for the counsel’s general expertise. I find that DPI is lower for companies represented either by counsel among the 200 largest law firms (“Counsel General AmLaw 200”) or by counsel that have a higher amount of revenue per lawyer (“Counsel General Revenue per Lawyer”). The univariate comparisons reveal no statistically significant differences in DPI for the other six proxies for general expertise of counsel.

B. Regression Analysis

The results from the univariate comparison are illustrative but could be biased if other variables are correlated with DPI and the proxies for counsel expertise, or if proxies of counsel VC expertise are correlated with proxies of counsel general expertise. To overcome this bias, I run multivariate regressions with DPI as the dependent variable and I include commonly used contract-theoretical variables as independent variables in addition to the proxies for counsel VC and general expertise.

The control variables are whether the VC firm and company are located in the same state, the company’s age, whether the founder is a serial founder, whether the founder is a serial founder whose previous company went public in an IPO, whether the founder is a serial founder whose previous company was acquired, the round number, the amount invested in the round, and the total number of VCs investing in the round. The regressions also include fixed effects for VC firm location

(California, Massachusetts, Texas, New York, and other states), company location (state), company industry (VentureEconomics 10-level classification), and year of investment round. To adjust for potential cross-correlation within a counsel, all regressions cluster residuals by counsel.²²

Table III.A presents results of multivariate regressions which include different proxies for counsel VC expertise as independent variables. The negative and significant coefficient estimates reveal that the univariate relationship between DPI and the proxies for counsel VC expertise holds even after controlling for other variables that have empirically been shown to influence the investor-friendliness of VC contracts (Kaplan and Strömberg (2003, 2004) and Bengtsson and Sensoy (2009)). The high T-statistics in these regression models (consistently over 4) reflect two patterns of the data. First, there exists positive correlations between most of the cash flow contingencies included in DPI. Second, as discussed in Section IV.D, the negative association between counsel VC expertise holds for most of the individual cash flow contingencies.

[place Table III.A here]

Table III.B presents results of multivariate regressions that, in addition to the primary proxy for counsel VC expertise (“Counsel VC # of Deals”), include various proxies for counsel general expertise as independent variables.²³ The coefficient on counsel VC expertise remains negative and statistically significant, and all but one proxy for counsel general expertise have statistically insignificant coefficients. The coefficient on “Counsel General (log) # of Lawyers” in regression model III.B.5 is negative. This is, however, not evidence that law firms with a larger number of attorneys on staff are associated with less investor-friendly contract design; the same regression model estimates a positive coefficient on “Counsel General AmLaw 200”, which also captures the number of

²² In untabulated regressions I also include the state in which the company is incorporated as an explanatory variable. This variable does not qualitatively change any of the results and is also not significantly related to DPI.

²³ In untabulated regressions I rerun all models of Table III.B using the other 3 proxies for counsel VC expertise. Results are qualitatively the same.

attorneys on staff. In untabulated regressions I restrict the sample to law firms that are in AmLaw 200 and re-estimate models III.B.4 – III.B.8 and find that none of the general expertise variables, including “Counsel General (log) # of Lawyers”, are significant.

[place Table III.B here]

In the univariate comparisons, I find that “Counsel General AmLaw 200” is associated with less investor-friendly contract design. A closer examination of the data reveals that the observed univariate difference based on the variable “Counsel General AmLaw 200” disappears in the multivariate analysis due to the high correlation between “Counsel General AmLaw 200” and “Counsel VC # of Deals” (correlation is 0.50).

The result that the legal counsel’s general expertise is not correlated with contract design is supportive evidence of my third empirical prediction. Attorneys do not appear to help entrepreneurs by providing general knowledge about contracts, certifying their clients, bringing refined bargaining skills to the negotiation table, or giving their clients other advantages that could be associated with counsel from law firms with high general reputation and expertise. The negative correlation between counsel VC expertise and the use of investor-friendly cash flow contingencies supports my first prediction – attorneys do help entrepreneurs by providing knowledge and information about a specific type of complex contract.

C. Robustness

Before proceeding with the analysis, I conduct a set of robustness tests to ensure that the results are not driven by a small number of law firms, that they hold for important subsamples, and that they are robust to other ways of aggregating the contract’s degree of investor-friendliness.

Tables IV.A and IV.B present results of regressions of DPI on counsel VC expertise (“Counsel VC # of Deals”), general expertise (“Counsel General AmLaw Top 25”) and control

variables.²⁴ Table IV.A splits the sample into subsamples based on counsel VC and general expertise. I find that counsel VC expertise is associated with a decrease in DPI even after excluding the largest counsel in the sample, Wilson Sonsini Goodrich & Rosati (model IV.A.1). The same relationship appears within subsamples of counsel above and below the sample median level of VC expertise (IV.A.2 and IV.A.3), and within subsamples of counsel in or not in AmLaw200 (IV.A.4 and IV.A.5). Moreover, as shown in model IV.A.6, DPI is monotonically decreasing between quintiles of counsel expertise.

[place Tables IV.A and IV.B here]

Table IV.B splits the sample by geographical area (IV.B.1-IV.B.3) and industry group (IV.B.4-IV.B.6). In untabulated regressions I also split the sample by the year of the financing rounds. The results from these regressions show that within all these subsamples, the DPI is inversely related to counsel VC expertise. This is not the case for counsel general expertise, as measured by “Counsel General AmLaw Top 25”. In fact, companies represented by counsel with high general expertise actually have a significantly *higher* DPI (more investor-friendly contract design) if they are headquartered outside California or Massachusetts, or if they operate in industries that are not classified as High Tech or Life Science.

D. Individual Cash Flow Contingencies

I next analyze how sensitive the results are to the specific definition of DPI. An aggregation method based on addition is clearly very simplified—the true value of each separate cash flow contingency depends on a number of factors including the distribution of exit values for the company,

²⁴ To ensure that the results discussed in this and following sections are robust, I have in untabulated regressions used “Counsel VC Top Ranked” as a proxy for counsel VC expertise and “Counsel General AmLaw Top 25” as a proxy for counsel general expertise. Results are qualitatively the same in these regression models.

the probability that the company will raise a follow-up round with lower valuation than the previous round, the VC's ownership stake and the VC contract used in previous rounds. Because I lack these important input parameters, which would be specific to each sample company, I am unable to follow this more complicated approach to calculate the contract's aggregate investor-friendliness.

An alternative and more feasible approach is to investigate whether the negative relationship between DPI and counsel VC expertise reflects a difference for only a small subset of the six underlying cash flow contingencies or is evidence of a more general pattern in contract design. To test this, I recode each cash flow contingency as a dummy variable that takes the value 1 if the cash flow contingency is "harsh" towards the entrepreneur (more investor-friendly) and 0 otherwise (less investor-friendly). I then run probit regressions where each cash flow contingency is regressed on counsel VC expertise ("Counsel VC # of Deals"), general expertise ("Counsel General AmLaw Top 25") and control variables. Results are presented in Table V, models V.1 – V.6. I find that all cash flow contingencies except liquidation preference are negatively related to counsel VC expertise, and three out of those five coefficients are statistically significant. From this I conclude that the empirical results on DPI are unlikely to be motivated by the method I use to aggregate the underlying cash flow contingencies to an index.

[place Table V here]

E. Pre-Money Valuation

The final regression model in Table V (V.7) is an OLS regression where the dependent variable is the company's pre-money valuation at the time of the financing round for which I study the VC contract. Pre-money valuation is a negotiated term that determines what fraction of the post-financing equity will be held by the VC by adjusting the price paid for one preferred share (price per share increases as the company's valuation increases). As shown in model V.7, in contrast to the

results on cash flow contingencies attached to the VC's preferred equity, I observe no relationship between valuation and counsel VC expertise.

This finding is consistent with the notion that entrepreneurs understand the meaning of pre-money valuation and its implications on the VC's payoff.²⁵ It also suggests that entrepreneurs are not forced to compensate VCs for the use of fewer investor-friendly cash flow contingencies by selling equity at a lower price.

F. Differences in the Entrepreneurs' Knowledge

If my thesis -- that attorneys affect contract design by alleviating the knowledge disadvantage of entrepreneurs -- is correct, then I would expect that the advice from expert attorneys should matter more in situations where the entrepreneur has less knowledge about negotiation of VC contracts. This is my second empirical prediction.

Table VI presents results of OLS regression models similar to model III.B.3, except that the sample is split by different measures of the entrepreneur's prior experience of negotiations of VC contracts. I first compare whether counsel matters more for first round financings than for follow-up rounds.²⁶ As shown in models VI.1 - VI.2, the coefficient on "Counsel VC # of Deals" is less than half (0.1 versus 0.23) for follow-up versus first rounds. Similar results are found when I split the sample by whether at least one of the company's founders has previously started a venture-backed company. The negative relationship between DPI and counsel VC expertise holds for companies that have no serial founder regardless of financing round (model VI.3), but not for those with a serial founder (6.4). Companies encountering their first negotiation with VCs benefit greatly from having counsel with VC expertise (model VI.5).

²⁵ As per our interviews with attorneys and entrepreneurs, it is not uncommon that the entrepreneur himself negotiates the valuation number with the VC without input or help from his attorney. After the parties have agreed on the valuation number, the entrepreneur's attorney steps in to ensure that the VC does not add an excessive number of investor-friendly cash flow contingencies to the contract.

²⁶ Entrepreneurs negotiating follow-up financing rounds may have more knowledge about contracts since the VCs who invested in previous rounds but are not investing in the new round may share their information and knowledge with the entrepreneur, and may even participate directly in negotiations.

[place Table VI here]

Overall, my findings show a stronger association between the legal counsel's VC expertise and contract design when the entrepreneur is likely to have less experience negotiating VC contracts. I interpret this as evidence that attorneys help entrepreneurs in contract negotiations by providing valuable information and knowledge.

V. Matching between Legal Counsels and Venture-Backed Companies

An important concern is that the observed association between contract design and counsel VC expertise may not be evidence of a causal impact of attorneys. Instead, the results could reflect an endogenous matching between law firms and their entrepreneur clients. Previous studies of VC contracts show that higher quality venture-backed companies, which present investors with smaller risks, are able to negotiate contracts with fewer investor-friendly cash flow contingencies (Kaplan and Strömberg (2003, 2004) and Bengtsson and Sensoy (2009)). If such companies are systematically more likely to match with legal counsel with high VC expertise, then this matching could potentially explain the observed relationship between contract design and law firm expertise.

I use several empirical approaches to rule out this alternative explanation. The first approach is to include control variables that capture different dimensions of the entrepreneur's and company's quality, and other variables that have been shown in previous studies to affect negotiated VC contracts. As discussed above, the results hold in all multivariate regression models that control for differences along these observable dimensions.

A. Matching on Observable Characteristics

The inclusion of observable measures of company quality does not rule out the possibility that the results are driven by matching of counsel expertise on unobservable measures of company or entrepreneur quality. The ideal econometric method to rule out the effect of such possible matching is

to identify an instrumental variable which correlates with the company's choice of law firm but is independent from the use of cash flow contingencies in the contract. It is in practice very difficult to identify a valid instrument because almost any company and entrepreneur characteristic could affect contract design. For example, the use of geography-based instruments would be problematic because geographical factors play an important role in the design of VC contracts (Bengtsson and Ravid (2009)). Instead, I rely on more indirect evidence that shows that unobserved company quality is unlikely to affect the results: I show that companies of higher quality do not appear to systematically match with legal counsel with more VC expertise.

This first piece of evidence supporting the conclusion that there is no matching on unobservable dimensions of company quality comes from my analysis of the company's pre-money valuation. This valuation number captures the VC's overall assessment of the company and thereby correlates positively with many unobservable company and entrepreneur characteristics. As discussed above, regression model V.7 shows that companies advised by counsel with more VC expertise do not have higher pre-money valuation.

The second piece of evidence comes from studying the matching between observable measures of company quality and counsel VC expertise in my sample. Table VII splits the sample into three groups, of approximately equal size, based on the counsel's VC expertise. I find no significant pattern of positive matching between the expertise of the legal counsel and the company's round amount, which is likely to be a good overall proxy for company quality. The same is true for company age and founder experience. The only systematic difference is that the most expert legal counsels are more likely to represent companies which are headquartered in California. If this difference were to reflect a selection problem, it does not bias the estimated coefficients since all regression models include controls for both company and VC state. Moreover, as shown in regression model IV.B.1, the association between contract design and counsel VC expertise holds when I restrict the sample to companies that are headquartered in California.

[place Table VII here]

B. Legal Counsel and Company Outcome

The third, and in my view most conclusive, piece of evidence against the matching explanation is found in my analysis of the empirical relationship between counsel VC expertise and outcomes of venture-backed companies. If companies of higher quality were to systematically match with legal counsel possessing high VC expertise, then I would expect to find that companies advised by these attorneys should have a higher likelihood of successful outcomes.

I am unable to study the final outcomes for the companies in my sample because they are all financed after 2004 (80% are from 2006 and 2007). Venture-backed companies typically need between five and seven years from the initial funding date to realize a successful exit. I therefore create a new dataset from *VentureEconomics* that includes venture-backed companies which were initially funded between 1983 and 2002. This dataset is limited to U.S. companies for which *VentureEconomics* identifies the name of a law firm that also appears in my contract sample. These restrictions generate a dataset with 3,087 unique companies.

I follow the standard methodology in the VC literature and define a venture-backed company as successful if it either had an IPO or was acquired (Hochberg, Ljungqvist, and Lu (2007) Sorensen (2007), and Gompers et al. (2008) use the same approach). I also study the time between the first financing round and successful exit.

Table VIII presents results of multivariate regressions of these company outcome measures. I use the same expertise measures as in my other empirical tests. Models VIII.1 - VIII.3 are probit regressions where the dependent variable takes the value 1 if the company had the most successful outcome, IPO, and 0 otherwise. Models VIII.4 - VIII.6 are probit regressions where the dependent variable takes the value 1 if the company was acquired or merged, which are also successful outcomes, and 0 if it failed or remained private (i.e. these regression models exclude companies with IPO outcome). I observe no empirical association between counsel expertise and these successful

outcomes. I also test whether companies advised by counsel with more expertise are more successful in the sense that they realize successful outcomes faster. Models VIII.7 - VIII.8 are OLS regressions where the dependent variable is the years to exit. While I find no correlation between counsel VC expertise and exit time, I note that the proxy for counsel general expertise is associated with *longer* exit times, which are typically viewed as less preferable by both entrepreneurs and VCs.

[place Table VIII here]

Taken together, the results on pre-money valuation, observable company quality measures and outcome are consistent evidence against the argument that companies of higher quality match with legal counsel of greater expertise.

VI. The Choice of Legal Counsel

A. Selection Process

Attorneys are typically not very selective; they will accept any entrepreneur client who is willing and able to pay the fees.²⁷ Attorneys make their living partly on having a large client volume, and they face relatively small reputational costs from representing low quality companies.²⁸

From the entrepreneur's standpoint, total legal fees for a contract negotiation represent a relatively minor expense. Interviews with attorneys suggest that a lawyer's standard fee for VC transactions is approximately \$500 per hour and that a typical negotiation results in no more than 50 hours billed by the lawyer. The combined legal fees total around \$25,000, which is less than a quarter of one percent of the money raised in the financing round for the average sample company. Given that

²⁷ After some bad experiences with equity compensation in "dot-com" companies, compensation to attorneys almost always takes the form of fixed fees. Attorneys sometime waive a majority of the fees if the company is not successful in closing the financing round.

²⁸ This is in contrast to IPO underwriters who can only advise a small number of clients per year and face significant reputational costs if their companies perform badly. Not surprisingly, IPO underwriters are very selective and therefore could play a certifying role as intermediaries.

legal fees represent a relatively minor expense for most venture-backed companies, it is unlikely that entrepreneurs cannot afford to hire expert counsel or find it excessively expensive.

B. Costs and Benefits of Expert Counsel

In interviews with attorneys, we have been told that attorneys with greater VC expertise are able to charge hourly rates that are up to three times as high as for attorneys with lesser expertise (about \$300 versus \$1000). This difference in legal fees is, however, small in comparison with the increase in the entrepreneur's payoff from having fewer investor-friendly cash flow contingencies. To estimate the exact payoff implications from changing the contract design is a very complicated and lengthy task. However, an approximate back-of-the-envelope calculation focusing only on one of the six cash flow contingencies studied in this paper, cumulative dividends, can illustrate the value of good counsel.

The average round amount in our sample is \$12 million. For a company that will exist 5 years prior to realizing an exit event, the dollar value of compounding cumulative dividends with the typical 8% rate would be $(1.08^5 - 1) \times \$12\text{m} = \6m . Because the average round in the sample gives the VC 30% equity ownership, only 70% of the cumulative dividends would represent an incremental payoff to the VC. Assuming that the exit value would be sufficiently high to pay dividends in full and that the cash flow contingencies linked to preferred equity will not be annulled, the incremental dollar value of cumulative dividends would be $\$6\text{m} \times 0.7 = \4.3m .²⁹ My results show that the probability of cumulative dividends is 16% lower for companies that are advised by top-tier law firms than for companies advised by bottom-tier law firms. The financial benefit from a reduced probability of cumulative dividends is consequently worth approximately $\$4.3\text{m} \times 0.16 = \$700,000$ to the entrepreneur, which corresponds to about 6% of the financing amount in the round.

²⁹ As discussed in Section I.B, VC contracts include a term called "Automatic Conversion Provision" according to which all cash flow contingencies are annulled if the company undertakes an IPO at a high valuation.

This calculation overstates the dollar amount because it assumes that the exit value of the company will be high enough to pay cumulative dividends in full. However, the estimate also understates the impact of expert legal counsel because it ignores the payoff implications associated with other investor-friendly contract provisions, such as participation rights and redemption rights. It also understates the counsel's impact if contract design does not change significantly between financing rounds. The value of removing investor-friendly cumulative dividends in the company's first financing round could be considerably higher if this removal will also apply to future rounds.

C. Optimal Choice by Most Entrepreneurs

The fact that differences in legal fees are small compared to the benefits associated with less investor-friendly contract design suggests that entrepreneurs in equilibrium should choose legal counsel with high VC expertise. Although the statistics in Table I on how often certain law firms are employed by entrepreneurs in my sample reflect a sampling bias to some degree, these frequencies are suggestive evidence that most entrepreneurs seem to be aware of the benefits of expert legal counsel. 200 out of 908 sample companies employ one of the two most prominent law firms on VC transactions – Wilson Sonsini Goodrich & Rosati, and Cooley Godward Kronish LLP. More than half (63%) of the entrepreneurs hire attorneys from one of the 19 law firms that are ranked as top counsel for VC transactions, and 87% employ a law firm that has a specialized VC practice area. In contrast, only 5% of all venture-backed companies employ a law firm that is ranked top 10 along the general expertise dimension (AmLaw 200 index) and 17% employ a top 25 firm. Thus, the revealed preference by most entrepreneurs is to choose counsel from attorneys who can help them negotiate better VC contracts.

D. Suboptimal Choice by Some Entrepreneurs

Even though a majority of entrepreneurs appear to optimize their choice of legal counsel, a non-trivial fraction of venture-backed companies uses attorneys who don't have high expertise on VC

transactions. This observation raises the question of why some entrepreneurs choose to forgo advice from more knowledgeable and better informed attorneys.

The first possible answer is that the best law firms have a fixed capacity. This answer has some merit because an attorney can only handle a certain number of clients at a given time. That said, interviews with attorneys indicate that the large law firms rarely turn down (honest) clients who have the willingness to pay the legal fees and who do not expose the law firm to conflicts of interest. Even if all the experienced partners in a law firm were busy serving other clients, top law firms, such as Wilson Sonsini Goodrich & Rosati, have associates who are available to advise clients before and during contract negotiations. The 19 most expert counsels in my sample (as captured by “Counsel VC Top Ranked”) had in 2007 on average 772 lawyers on staff. While many associates are likely to have inferior knowledge and expertise compared with the experienced partners of the same firm, they are likely to have better knowledge about VC contracts and access to better internal databases than most of the inexpert attorneys in my sample.

The second, and in my view the most plausible, answer is that some entrepreneurs are not aware that attorneys, whose traditional role is to translate negotiated agreements into legally binding documents, could also affect the outcome of VC contract negotiations. Although some law firms that specialize in VC transactions have received fame for helping their entrepreneur clients with more than just traditional legal work, it is hard for entrepreneurs to formally assess the dollar value of good counsel. Data on negotiated term sheets are not publicly available, and even if such data were available, in order to understand it entrepreneurs would need precisely the same knowledge and computational skills that in this paper I argue that they lack.

Instead of making a fully-informed choice of legal counsel, an entrepreneur may choose a law firm whose office is close to his company’s location or an attorney with whom he has a previous relationship. It is also possible that an entrepreneur chooses a “one stop shop” law firm with high general expertise because he anticipates that his company will demand other legal services such as

patenting, M&A or litigation work, for which an attorney who specializes in VC contract negotiations may not be the optimal choice.

VII. Conclusion

This paper presents empirical evidence that intermediaries could play an informational role in negotiations of financial contracts by alleviating the asymmetric knowledge of borrowers and investors about complex contracts. Across 908 contracts used in U.S. VC transactions, I show that entrepreneurs advised by attorneys with high VC expertise are able to negotiate contracts which have fewer investor-friendly cash flow contingencies attached to the VC's preferred stock. This result holds across major industry groups and geographical regions, and is robust to how I aggregate cash flow contingencies.

Because I do not observe any difference in contract design for companies counseled by attorneys with high general expertise, I infer that attorneys help entrepreneurs by having an in-depth understanding of VC contracts, rather than by providing better negotiation skills or certifying their clients. This thesis is supported by the finding that attorneys with high VC expertise matters more for entrepreneurs who have less experience of VC contract negotiations.

I present evidence against the explanation that the observed empirical association between attorney expertise and contract design is motivated by observed or unobserved company quality. The results survive a battery of important controls, and companies of higher quality do not appear to systematically match with more expert attorneys. Entrepreneurs who do not choose to be counseled by attorneys with more VC expertise appear to be making a mistake because the financial benefits of less investor-friendly contract design significantly outweigh the incremental increase in legal fees.

My findings highlight the role of intermediaries in negotiations of complex financial contracts. I thereby contribute to the strand of the incomplete contracting literature that builds on the bounded rationality approach by Simon (1955) and Williamson (1975, 1985). Models by Dye (1985), Anderlini and Felli (1994, 1999, 2004), Battigalli and Maggi (2002) and Tirole (2008) show that

boundedly rational contracting parties (versus boundedly rational courts, as in other incomplete contracting models) could find it costly to conceive and negotiate complicated contractual contingencies, and to calculate payoffs of complex contracts.

On the one hand, the evidence presented in this paper can be interpreted as supportive evidence of the real-world relevance of cognition efforts and computational costs in contracting situations. I show that entrepreneurs have limited knowledge about the intricacies of complex VC contracts, and high computational costs could affect negotiations of complex contracts. On the other hand, this paper illustrates that knowledge asymmetries of the contracting parties may not be a large problem in practice. High computational costs associated with complex contracts create a demand for specialized intermediaries who understand the implications of complicated contractual provisions. Attorneys fulfill this role in the VC setting and, as my results demonstrate, expert attorneys can play an informational role that alleviates knowledge asymmetries and affects contract design.

References

- Ashenfelter, Orley and David Bloom, 1993, Lawyers as Agents of the Devil in a Prisoner's Dilemma Game, working paper.
- Aghion, Philippe, and Patrick Bolton, 1992, An incomplete contracts approach to financial contracting, *Review of Economic Studies* 59, 473-494.
- Anderlini, Luca, and Leonardo Felli, 1994, Incomplete written contracts: Undescribable states of nature, *Quarterly Journal of Economics* 109, 1085-1124.
- Anderlini, Luca, and Leonardo Felli, 1999, Incomplete contracts and complexity costs, *Theory and Decision* 46, 23-50.
- Anderlini, Luca, and Leonardo Felli, 2004, Bounded rationality and incomplete contracts, *Research in Economics* 58, 3-30.
- Ashenfelter, Orley, and David Bloom, 1993, Lawyers as agents of the devil in a prisoner's dilemma game, Working paper, National Bureau of Economic Research.
- Falls, Michaela, 2008, *Analyzing VC Deal Terms. Leading Lawyers on Structuring Term Sheets, Developing Negotiation Strategies, and Assessing Risks* (Aspatore Books, Boston).
- Battigalli, Pierpaolo, and Giovanni Maggi, 2002, Rigidity, discretion and the cost of writing contracts, *American Economic Review* 92, 798-817.
- Bengtsson, Ola, and S. Abraham Ravid, 2009, The importance of geographical location and distance on venture capital contracts, Working paper, Cornell University and Rutgers University.
- Bengtsson, Ola, and Berk Sensoy, 2009, Investor abilities and financial contracting: Evidence from venture capital, Working paper, Cornell University and the University of Southern California.
- Berger, Allen N., and Gregory F. Udell, 1995, Relationship lending and lines of credit in small firm finance, *Journal of Business* 68, 351-382.
- Bharath, Sreedhar T., Sandeep Dahiya, Anthony Saunders, and Anand Srinivasan, 2008, Lending relationships and loan contract terms: Does size matter?, *Review of Financial Studies* (forthcoming).
- Block, Richard, and Jack Stieber, 1987, The impact of attorneys and arbitrators on arbitration awards, *Industrial and Labor Relations Review* 40, 543-555.

- Bolton, Patrick, and David S. Scharfstein, 1990, A theory of predation based on agency problems in financial contracting, *American Economic Review* 80, 93-106.
- Bottazzi, Laura, Marco Da Rin, and Thomas Hellmann, 2008, What is the role of legal systems in financial intermediation? Theory and evidence, *Journal of Financial Intermediation* (forthcoming).
- Broughman, Brian, and Jesse Fried, 2008, Renegotiation of cash flow rights in the sale of VC-backed firms, *Journal of Financial Economics* (forthcoming).
- Carter, Richard, and Steven Manaster, 1990, Initial public offerings and underwriter reputation, *Journal of Finance* 45, 1045–1067.
- Dewatripont, Mathias, and Jean Tirole, 1994, A theory of debt and equity: Diversity of securities and manager-shareholder congruence, *Quarterly Journal of Economics* 109, 1027-1054.
- Diamond, Douglas, 1991, debt maturity and liquidity risk, *Quarterly Journal of Economics* 106, 709-737.
- Drucker, Steven, and Manju Puri, 2008, On loan sales, loan contracting and lending relationships, *Review of Financial Studies* (forthcoming).
- Dye, Ronald, 1985, Costly contract contingencies, *International Economic Review* 26, 233-250.
- Eggleston, Karen, Eric A. Posner, and Richard Zeckhauser, 2000, The design and interpretation of contracts: Why complexity matters, *Northwestern University Law Review* 95, 91-132.
- Gale, Douglas, and Martin Hellwig, 1985, Incentive-compatible debt contracts: The one-period problem, *Review of Economic Studies* 52, 647-69.
- Gompers, Paul A., 1999, Ownership and Control in Entrepreneurial Firms: An Examination of Convertible Securities in Venture Capital Investment, Working paper, Harvard Business School and National Bureau of Economic Research.
- Gompers, Paul, Anna Kovner, Josh Lerner, and David Scharfstein, 2008, Performance persistence in entrepreneurship, Working paper, Harvard Business School and National Bureau of Economic Research.
- Harcourt, Mark, 2000, How attorney representation and adjudication affect Canadian arbitration and labor relations board decisions, *Journal of Labor Research* 21, 149-159.

- Harris, Milton, and Artur Raviv, 1979, Optimal incentive contracts with imperfect information, *Journal of Economic Theory* 20, 231–259.
- Harris, Milton, and Artur Raviv, 1992, Financial contracting theory, in J. Laffont, ed.: *Advances in Economic Theory: Sixth World Congress, Vol. II* (Cambridge University Press).
- Hart, Oliver, 1995, *Firms, Contracts, and Financial Structure* (Oxford University Press).
- Hart, Oliver, 2001, Financial contracting, *Journal of Economic Literature* 39, 1079-1100.
- Hart, Oliver, and John Moore, 1994, A theory of debt based on the inalienability of human capital, *Quarterly Journal of Economics* 109, 841–879.
- Hart, Oliver, and John Moore, 1998, “Default and renegotiation: A dynamic model of debt, *Quarterly Journal of Economics* 113, 1–41.
- Hellmann, Thomas, and Manju Puri, 2002, Venture capital and the professionalization of startup firms: Empirical evidence, *Journal of Finance* 57, 169–197.
- Hellmann, Thomas, Laura Lindsey, and Manju Puri, 2008, Building relationships early: Banks in venture capital, *Review of Financial Studies* 21, 513-541.
- Hoberg, Gerard, 2007, The underwriter persistence phenomenon, *Journal of Finance* 62, 1169-1206.
- Hochberg, Yael, Alexander Ljungqvist, and Yang Lu, 2007, Whom you know matters: Venture capital networks and investment performance, *Journal of Finance* 62, 251-301.
- Ivashina, Victoria, and Anna Kovner, 2008, The private equity advantage: Leveraged buyout firms and relationship banking, Working paper, Harvard Business School and Federal Reserve Bank of New York.
- Kaplan, Steven, and Per Strömberg, 2003, Financial contracting theory meets the real world: An empirical analysis of venture capital contracts, *Review of Economic Studies* 70, 281-316.
- Kaplan, Steven, and Per Strömberg, 2004, Characteristics, contracts, and actions: Evidence from venture capitalist analyses, *Journal of Finance* 59, 2177-2210.
- Kaplan, Steven N., Frederic Martel, and Per Strömberg, 2007, How do legal differences and experience affect financial contracts?, *Journal of Financial Intermediation* 16, 273-311.
- Lerner, Josh, 1995, Venture capitalists and the oversight of private firms, *Journal of Finance* 50, 301-318.

- Lerner, Josh, and Antoinette Schoar, 2005, Does legal enforcement affect financial transactions? The contractual channel in private equity, *Quarterly Journal of Economics* 120, 223-246.
- Metrick, Andrew, 2007, *Venture Capital and the Finance of Innovation* (John Wiley & Sons, Hoboken, NJ).
- Petersen, Mitchell A., and Raghuram G. Rajan, 1994, The benefits of lending relationships: Evidence from small business data, *Journal of Finance* 49, 3-37.
- Rock, Kevin, 1986, Why new issues are underpriced, *Journal of Financial Economics* 15, 187-212.
- Sahlman, William A., 1990, The structure and governance of venture-capital organizations, *Journal of Financial Economics* 27, 473-521.
- Simon, Herbert A., 1955, A behavioral model of rational choice, *Quarterly Journal of Economics* 69, 99-118.
- Sorensen, Morten, 2007, How smart is smart money? A two-sided matching model of venture capital, *Journal of Finance* 62, 2725-2762.
- Suchman, Mark C., 1994, On advice of counsel: Law firms and venture capital funds as information intermediaries in the structuration of Silicon Valley, Unpublished doctoral dissertation, Stanford University.
- Tirole, Jean, 2008, Cognition and incomplete contracts, *American Economic Review* (forthcoming).
- Townsend, Robert, 1979, Optimal contracts and competitive markets with costly state verification, *Journal of Economic Theory* 21, 265-293.
- Williamson, Oliver, 1975, *Market and Hierarchies: Analysis of Antitrust Implications* (Free Press, New York).
- Williamson, Oliver, 1985, *The Economic Institutions of Capitalisms: Firms, Markets Relational Contracting* (Free Press, New York).
- Zarutskie, Rebecca, 2008, The role of top management team human capital in venture capital markets: Evidence from first-time funds, *Journal of Business Venturing* (forthcoming).

Appendix A – Common Deal Terms Used in Venture Capital Contracts

<u>Studied in this Paper</u>	<u>Not Studied in this Paper</u>
Cumulative Non-Compounding Dividends	Junior / Pari-Passu / Senior
Cumulative Compounding Dividends	Milestones
Non-Cumulative Dividends	Drag-Along Rights / Tag-Along Rights
Liquidation Preference	Co-Sale Rights
Participating Preferred	Piggyback Rights
Convertible Preferred	Preemptive Rights
Participation Cap	Lockup Period
Conversion Price	Protective Provisions of Shareholder
Narrow-Based Weighted-Average Anti-Dilution	Protective Provisions of Board Member
Broad-Based Weighted-Average Anti-Dilution	Board Seat Allocation
Full-Ratchet Anti-Dilution	Mandatory Conversion
Redemption Rights	Automatic Conversion
Pay-to-Play: Convert to Common	Vesting Schedule for Founder Shares
Pay-to-Play: Convert to Shadow Preferred	Reverse Vesting
Price per Share	Information Rights
Pre-Money / Post-Money Valuation	Representation and Warranties
	Non-Compete / Non-Solicitation Clause

Figure 1 - IPO and VC Amounts

From Jay Ritter's webpage. Includes IPOs with an offer price of at least \$5.00, excluding ADRs, unit offers, closed-end funds, REITs, partnerships, banks and S&Ls, and stocks not listed on Amex, NYSE or NASDAQ.

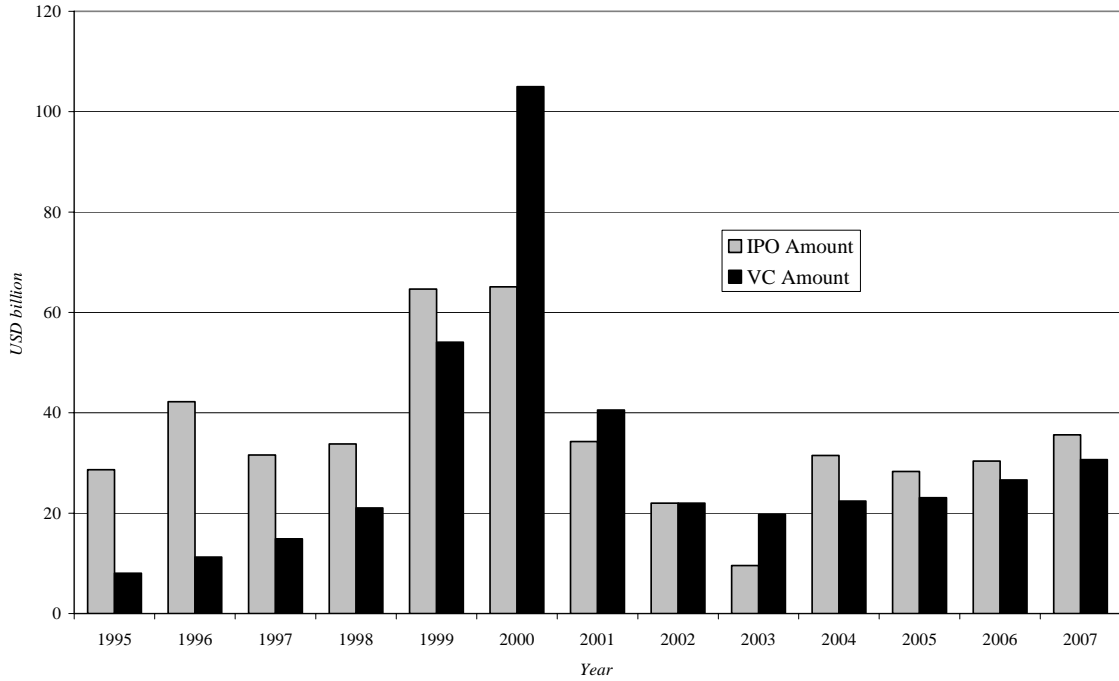


Figure 2 - Distribution of Aggregate Contract Harshness

Index is the sum of six cash flow rights attached to VC preferred stock. See Table 1C for details on coding.

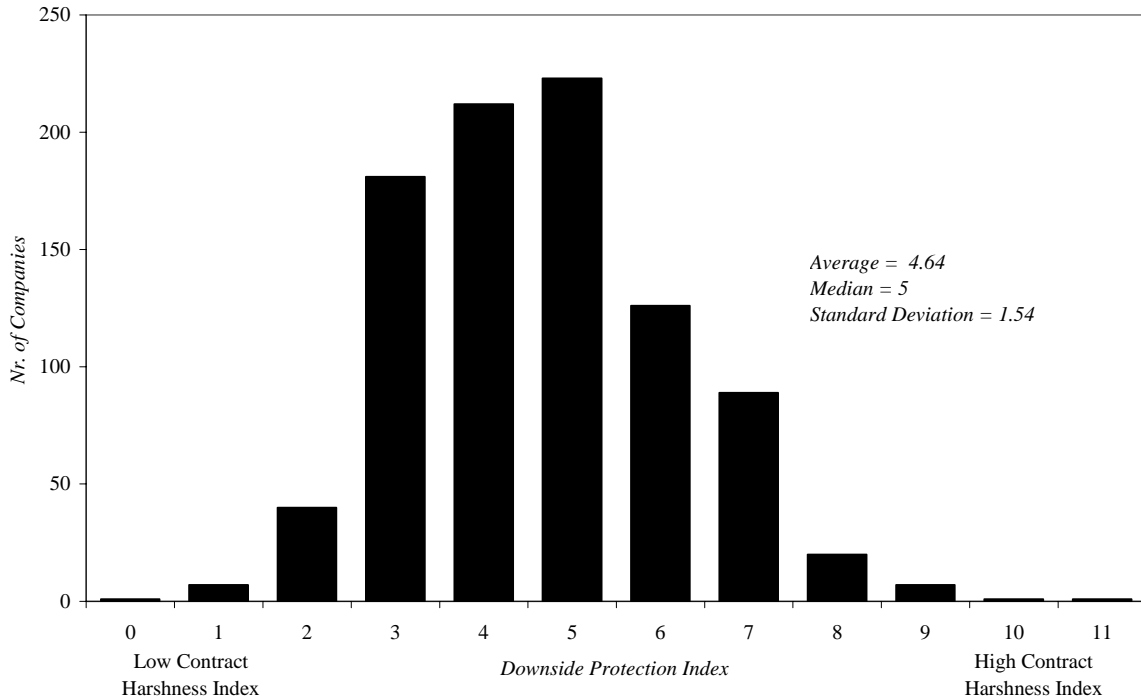


Table I.A - Summary Statistics

One observation is one contract between a venture-backed company and its VC investors. Counsel General Expertise variables are from the 2007 edition of American Lawyer 200. Each contract is matched by company name and round date with an investment round listed in Venture Economics. All VC variables are updated to match the year of the contract. Table 1C details the coding of contract terms that we aggregate to compute Downside Protection Index (DPI). Lead VC is identified as the largest investor in the round.

	<u># of Obs.</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Min</u>	<u>Max</u>
<u>Counsel VC Expertise</u>					
Counsel VC # of Deals	908	39	40	1	114
Counsel VC Top Ranked	908	0.63	0.48	0.00	1.00
Counsel VC Practice Area	908	0.87	0.33	0.00	1.00
Counsel VC Office in Silicon Valley	908	0.51	0.50	0.00	1.00
<u>Counsel General Expertise</u>					
Counsel General AmLaw 200	908	0.76	0.42	0.00	1.00
Counsel General AmLaw Top 10	908	0.05	0.21	0.00	1.00
Counsel General AmLaw Top 25	908	0.17	0.38	0.00	1.00
Counsel General Revenue (000s)	694	554,000	338,000	99,000	1,620,000
Counsel General # of Lawyers	701	706	401	162	3,082
Counsel General Entry Salary	653	151,714	12,136	100,000	160,000
Counsel General Revenue/Lawyer	694	761,437	93,697	413,352	1,051,020
Counsel General Gross Profit Margin	694	0.36	0.07	0.22	0.63
<u>Round Characteristics</u>					
Contract Downside Protection Index (DPI)	908	4.64	1.54	0.00	11.00
Pre-Money Valuation (000s)	507	51,400	63,600	910	493,000
Round Number	908	2.81	1.58	1.00	5.00
Total Round Amount (000s)	908	12,200	13,300	50	110,000
Number of VCs in Round	908	4.31	2.64	1.00	17.00
<u>Company Characteristics</u>					
Company in California	908	0.49	0.50	0.00	1.00
Company in Massachusetts	908	0.11	0.31	0.00	1.00
Company in Texas	908	0.07	0.25	0.00	1.00
High Technology Industry	908	0.39	0.49	0.00	1.00
Life Science Industry	908	0.30	0.46	0.00	1.00
Serial Founder	908	0.24	0.43	0.00	1.00
Serial Founder with IPO	908	0.07	0.25	0.00	1.00
Company Age	908	4.07	2.72	0.00	10.00
<u>Lead VC Characteristics</u>					
VC in California	908	0.50	0.50	0.00	1.00
VC and Company in Same State	908	0.49	0.50	0.00	1.00
VC Partnership	908	0.81	0.39	0.00	1.00
VC Experience	908	136	164	1	797
VC Age	908	15	11	0	47
VC IPO Ratio	908	0.15	0.08	0.00	0.53
VC Fund Size (000s)	510	340,000	423,000	200	5,000,000

Table I.B - Overview of Contract Terms and Coding of Downside Protection Index

See Table I.A for sample overview. Each contract term contributes with 0, 1 or 2 to the Downside Protection Index (DPI), where 2 is the harshest to the entrepreneur / most favorable to the VC.

Cumulative Dividends

Dividends that the investor earns annually until the company is sold or liquidated. Cumulative means that the dividends are not paid out annually but when the company is sold or liquidated. Cumulative dividends are senior to common stock.

	<u>Above 8% = 2</u>	<u>8% or Below = 1</u>	<u>Not Included = 0</u>
Number of Observations	42 (5%)	170 (19%)	696 (77%)

Liquidation Preference

The multiple of the investor's investment that is paid back to the investor when the company is sold or liquidated. Liquidation preference is senior to common stock.

	<u>Above 2X = 2</u>	<u>Above 1X, Up to 2X = 1</u>	<u>1X = 0</u>
Number of Observations	7 (1%)	51 (6%)	850 (94%)

Participation

With participation the investor receives both a liquidation preference and a fraction of common stock when the company is sold or liquidated. With "Capped" participation the investor only receives the liquidation preference if his investment IRR is below a certain hurdle. With no participation the investor holds convertible preferred stock.

	<u>Not Capped = 2</u>	<u>Capped = 1</u>	<u>Not Included = 0</u>
Number of Observations	371 (41%)	237 (26%)	300 (33%)

Anti-Dilution

The investor is issued additional shares if the company raises a new financing round at a lower valuation than what the investor paid (down round). "Full Ratchet" gives the investor more additional shares than "Weighted Average", especially if the new financing round is small.

	<u>Full Ratchet = 2</u>	<u>Weighted Average = 1</u>	<u>Not Included = 0</u>
Number of Observations	62 (7%)	832 (92%)	14 (2%)

Redemption

The investor has the right to sell his shares back to the company after a specified time period. A typical redemption right provision gives the investor the right to sell back 1/3 of his shares after 5 years, 1/3 after 6 years and the remaining 1/3 after 7 years.

		<u>Included = 1</u>	<u>Not Included = 0</u>
Number of Observations		434 (48%)	474 (52%)

Pay-To-Play

Pay-to-play provisions specify what contractual rights the investor loses if he does not invest in a follow-up financing round of the company. With "Convert to Preferred" the investor loses some contractual rights (typically anti-dilution rights) that are attached to his preferred stock. With "Convert to Common" the investor loses all contractual rights that are attached to his preferred stock.

	<u>Not Included = 2</u>	<u>Convert to Preferred = 1</u>	<u>Convert to Common = 0</u>
Number of Observations	746 (82%)	36 (4%)	126 (14%)

Table I.C - List of Legal Counsel with Highest VC Expertise

See Table I.A for sample overview. This table lists the 20 legal counsels that have the highest frequency in our sample ("Counsel VC # of Deals"). VC Top Ranked is based on rankings by Chambers and Partners and Legal 500. General counsel variables are from the 2007 edition of American Lawyer. Counsel not listed in American Lawyer have not available (na) General Revenue and General Lawyers.

Legal Counsel Name	VC Expertise				General Expertise			
	# of Deals (in Sample)	VC Practice Area	Office in Silicon Valley	Top Ranked for VC Deals	AmLaw Top 10	AmLaw Top 25	Revenue (\$ million)	Lawyers (head-count)
Wilson Sonsini Goodrich & Rosati	114	1	1	1	0	0	460	582
Cooley Godward Kronish LLP	95	1	0	1	0	0	335	436
Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP	56	1	1	1	0	0	na	na
Heller Ehrman LLP	47	1	0	1	0	0	507	601
DLA Piper	44	1	1	1	0	1	1016	1348
Fenwick & West LLP	30	1	1	1	0	0	167	235
Latham & Watkins LLP	30	1	0	1	1	1	1624	1766
Goodwin Procter LLP	27	1	1	1	0	0	506	620
Orrick, Herrington & Sutcliffe LLP	27	1	1	1	0	0	666	839
Wilmer Hale LLP	24	1	1	1	0	1	897	1008
Morrison & Foerster LLP	19	1	0	1	0	1	774	946
Perkins Coie LLP and Affiliates	18	1	1	0	0	0	357	582
Pillsbury Winthrop Shaw Pittman LLP	15	1	1	1	0	0	580	751
O'Melveny & Myers LLP	12	1	1	1	0	1	869	1044
Ropes & Gray LLP	12	1	0	0	0	0	616	719
Stradling Yocca Carlson & Rauth	11	1	1	0	0	0	na	na
Reed Smith	10	1	1	0	0	0	644	987
Bingham McCutchen LLP	9	1	0	0	0	0	686	825
Hutchison Law Group PLLC	9	1	0	0	0	0	na	na
Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.	9	1	1	0	0	0	261	395

Table II - Univariate Comparison of Downside Protection Index for Different Levels of Legal Counsel Expertise

See Table 1A for sample overview. This table presents the mean Downside Protection Index (DPI) for different sorts on Counsel VC Expertise and Counsel General Expertise. Low (High) Expertise for non-binary variables includes variables below (above) the sample median. Rank-Test is a Wilcoxon rank-sum test of difference of means.

	Less Expertise	More Expertise	Difference Less-More	Rank-Test (p-value)
<u>Counsel VC Expertise</u>				
Counsel VC # of Deals	4.86	4.39	0.47	0.00
Counsel VC Top Ranked	4.92	4.48	0.44	0.00
Counsel VC Practice Area	5.11	4.58	0.53	0.00
Counsel VC Office in Silicon Valley	4.82	4.48	0.35	0.00
All Above 4 Counsel Proxies Combined	5.17	4.36	0.81	0.00
<u>Counsel General Expertise</u>				
Counsel General AmLaw 200	4.88	4.58	0.31	0.01
Counsel General AmLaw Top 10	4.65	4.52	0.13	0.74
Counsel General AmLaw Top 25	4.65	4.63	0.03	0.98
Counsel General Revenue	4.61	4.54	0.07	0.69
Counsel General Lawyer	4.57	4.58	-0.01	0.88
Counsel General Revenue per Lawyer	4.70	4.46	0.24	0.02
Counsel General Gross Profit Margin	4.54	4.62	-0.08	0.50
Counsel General Entry Salary	4.51	4.58	-0.07	0.59

Table III.A - Downside Protection Index and Legal Counsel VC Expertise

See Table I.A for sample overview. This table presents OLS regressions in which the dependent variable is DPI. Table I.B describes how Downside Protection Index (DPI) is calculated - a higher DPI means that the contract includes more investor-friendly cash flow rights. All specifications include fixed effects for VC firm location (California, Massachusetts, Texas, New York, and other), company location (state), company industry (Venture Economics 10-level classification), and round year. Constant is estimated but not reported. Standard errors are clustered by counsel and reported in brackets. Significance at 10% level marked with *, 5% with ** and 1% with ***.

Specification	1	2	3	4	5	6	7
Dependent Variable	Downside Protection Index						
Round Number	0.113*** [0.040]	0.110*** [0.040]	0.114*** [0.041]	0.100** [0.041]	0.116*** [0.041]	0.111*** [0.041]	0.116*** [0.041]
(log) Company Age	0.107 [0.099]	0.108 [0.100]	0.116 [0.103]	0.116 [0.103]	0.106 [0.099]	0.105 [0.100]	0.108 [0.100]
Serial Founder	-0.106 [0.146]	-0.106 [0.147]	-0.091 [0.148]	-0.109 [0.147]	-0.1 [0.147]	-0.107 [0.146]	-0.095 [0.148]
Serial Founder with IPO	-0.109 [0.192]	-0.107 [0.192]	-0.1 [0.198]	-0.076 [0.198]	-0.114 [0.194]	-0.107 [0.194]	-0.115 [0.195]
Serial Founder with Merger	0.022 [0.201]	0.012 [0.203]	-0.015 [0.205]	0.009 [0.200]	0.017 [0.202]	0.03 [0.200]	0.005 [0.205]
(log) Number of VCs in Round	0.207* [0.114]	0.217* [0.116]	0.226* [0.117]	0.220* [0.118]	0.210* [0.115]	0.207* [0.115]	0.220* [0.117]
(log) Total Round Amount	-0.071 [0.043]	-0.080* [0.044]	-0.086** [0.044]	-0.091** [0.044]	-0.073* [0.044]	-0.074* [0.044]	-0.082* [0.044]
VC and Company in Same State	-0.126 [0.117]	-0.118 [0.119]	-0.14 [0.122]	-0.128 [0.120]	-0.129 [0.118]	-0.124 [0.117]	-0.127 [0.120]
(log) VC Experience	-0.237*** [0.059]	-0.246*** [0.059]	-0.253*** [0.058]	-0.249*** [0.059]	-0.237*** [0.059]	-0.234*** [0.059]	-0.244*** [0.059]
VC Partnership	-0.377*** [0.111]	-0.383*** [0.112]	-0.366*** [0.112]	-0.361*** [0.113]	-0.373*** [0.111]	-0.370*** [0.111]	-0.374*** [0.112]
(log) Counsel VC # of Deals	-0.145*** [0.028]				-0.126*** [0.035]	-0.134*** [0.029]	
Counsel VC Top Ranked		-0.338*** [0.101]					-0.244** [0.110]
Counsel VC Practice Area			-0.480*** [0.163]		-0.187 [0.192]		-0.340* [0.177]
Counsel VC Office in Silicon Valley				-0.240** [0.117]		-0.105 [0.084]	
Observations	908	908	908	908	908	908	908
R-squared	0.23	0.23	0.23	0.22	0.24	0.24	0.23

Table IV.A - Downside Protection Index and Legal Counsel Expertise, Robustness

See Table I.A for sample overview. This table presents OLS regressions in which the dependent variable is DPI. Table I.B describes how Downside Protection Index (DPI) is calculated - a higher DPI means that the contract includes more investor-friendly cash flow rights. All specifications include fixed effects for VC firm location (California, Massachusetts, Texas, New York, and other), company location (state), company industry (Venture Economics 10-level classification), and round year. Constant is estimated but not reported. Standard errors are clustered by counsel and reported in brackets. Significance at 10% level marked with *, 5% with ** and 1% with ***.

Specification	1	2	3	4	5	6
Dependent Variable	Downside Protection Index					
Round Number	0.129*** [0.045]	0.088 [0.062]	0.129* [0.066]	0.104** [0.043]	0.094 [0.107]	0.114*** [0.040]
(log) Company Age	0.085 [0.111]	0.171 [0.167]	0.094 [0.137]	0.128 [0.115]	0.206 [0.214]	0.103 [0.099]
Serial Founder	-0.147 [0.161]	0.265 [0.197]	-0.433* [0.231]	0.073 [0.156]	-0.269 [0.352]	-0.112 [0.148]
Serial Founder with IPO	-0.1 [0.209]	-0.398 [0.278]	0.254 [0.307]	-0.305 [0.207]	0.876 [0.651]	-0.1 [0.189]
Serial Founder with Merger	0.138 [0.196]	-0.187 [0.304]	0.204 [0.284]	-0.187 [0.210]	0.305 [0.491]	0.018 [0.202]
(log) Number of VCs in Round	0.207 [0.132]	0.17 [0.095]	0.052 [0.193]	0.184 [0.115]	0.033 [0.359]	0.205* [0.114]
(log) Total Round Amount	-0.071 [0.050]	-0.032 [0.049]	-0.052 [0.084]	-0.045 [0.045]	-0.066 [0.094]	-0.072 [0.044]
VC and Company in Same State	-0.156 [0.124]	-0.09 [0.180]	-0.205 [0.200]	-0.136 [0.124]	-0.007 [0.266]	-0.124 [0.118]
(log) VC Experience	-0.234*** [0.068]	-0.163 [0.113]	-0.307*** [0.075]	-0.232*** [0.071]	-0.271** [0.117]	-0.236*** [0.059]
VC Partnership	-0.359*** [0.122]	-0.294* [0.131]	-0.600*** [0.198]	-0.494*** [0.123]	-0.25 [0.268]	-0.390*** [0.111]
(log) Counsel VC # of Deals	-0.155*** [0.033]	-0.232*** [0.041]	-0.172** [0.076]	-0.088** [0.036]	-0.249*** [0.061]	
Counsel General AmLaw Top 25						-0.001 [0.121]
Counsel VC # of Deals 2nd Quintile						-0.335** [0.156]
Counsel VC # of Deals 3rd Quintile						-0.444*** [0.132]
Counsel VC # of Deals 4th Quintile						-0.560*** [0.133]
Counsel VC # of Deals 5th Quintile						-0.640*** [0.122]
Observations	794	470	438	694	214	908
R-squared	0.24	0.23	0.3	0.25	0.39	0.23
Sample (Counsel)	Excluding W,S,G&R	Coun. High VC Exp.	Coun. Low VC Exp.	In AML200	Not In AML200	Full

Table IV.B - Downside Protection Index and Legal Counsel Expertise, Important Subsamples

See Table I.A for sample overview. This table presents OLS regressions in which the dependent variable is DPI. Table I.C describes how Downside Protection Index (DPI) is calculated - a higher DPI means that the contract includes more investor-friendly cash flow rights. All specifications include fixed effects for VC firm location (California, Massachusetts, Texas, New York, and other), company location (state), company industry (Venture Economics 10-level classification), and round year. Constant is estimated but not reported. Standard errors are clustered by counsel and reported in brackets. Significance at 10% level marked with *, 5% with ** and 1% with ***.

Specification	1	2	3	4	5	6
Dependent Variable	Downside Protection Index					
Round Number	0.062 [0.045]	0.021 [0.195]	0.169** [0.083]	0.087 [0.061]	0.138* [0.072]	0.028 [0.071]
(log) Company Age	0.261** [0.128]	0.251 [0.505]	-0.004 [0.210]	0.025 [0.214]	0.216 [0.172]	0.16 [0.201]
Serial Founder	0.097 [0.197]	0.092 [0.485]	-0.335 [0.270]	-0.131 [0.218]	-0.237 [0.261]	-0.172 [0.359]
Serial Founder with IPO	-0.259 [0.222]	-0.511 [0.564]	0.573 [0.440]	0.365 [0.353]	-0.197 [0.265]	0.003 [0.465]
Serial Founder with Merger	-0.047 [0.191]	0.125 [0.663]	-0.115 [0.422]	-0.086 [0.329]	-0.074 [0.339]	0.52 [0.389]
(log) Number of VCs in Round	0.226 [0.168]	0.393 [0.478]	0.195 [0.293]	0.181 [0.219]	0.297 [0.303]	0.408 [0.283]
(log) Total Round Amount	0.001 [0.056]	-0.077 [0.243]	-0.135 [0.093]	-0.075 [0.082]	-0.107 [0.113]	-0.019 [0.085]
VC and Company in Same State	0 [0.000]	0 [0.000]	-0.318 [0.301]	-0.579*** [0.165]	-0.09 [0.217]	-0.207 [0.166]
(log) VC Experience	-0.270*** [0.070]	-0.457 [0.305]	-0.170** [0.085]	-0.205** [0.080]	-0.208* [0.117]	-0.331*** [0.090]
VC Partnership	-0.325** [0.160]	0.008 [0.445]	-0.571** [0.262]	-0.621** [0.272]	-0.167 [0.207]	-0.468*** [0.172]
(log) Counsel VC # of Deals	-0.147*** [0.043]	-0.357** [0.130]	-0.049 [0.056]	-0.163*** [0.058]	-0.159*** [0.053]	-0.077* [0.044]
Counsel General AmLaw Top 25	-0.032 [0.113]	-0.44 [0.403]	0.418* [0.218]	-0.162 [0.225]	0.063 [0.331]	0.491** [0.199]
Observations	449	100	359	350	272	286
R-squared	0.21	0.28	0.16	0.2	0.2	0.2
Sample (Company State)	Calif.	Mass.	Other State	High Tech	Life Science	Other Industry

Table V - Individual Cash Flow Rights, Pre-Money Valuation and Legal Counsel Expertise

See Table I.A for sample overview. Regression models 1-6 are probit regressions in which different cash flow rights, described in Table I.C, are the dependent variables. Regression model 7 is an OLS regression where the (log) pre-money valuation is the dependent variable. All specifications include fixed effects for VC firm location (California, Massachusetts, Texas, New York, and other), company location (state), company industry (Venture Economics 10-level classification), and round year. Constant is estimated but not reported. Standard errors are clustered by counsel and reported in brackets. Significance at 10% level marked with *, 5% with ** and 1% with ***.

Specification	1	2	3	4	5	6	7
Dependent Variable	Divid.	Liq. Pref	Particip.	Anti-Dil.	Redemp.	Pay-to-Play	Valuation
Round Number	0.013 [0.011]	0.004 [0.007]	0.025* [0.014]	0.029** [0.012]	0.016** [0.006]	-0.024*** [0.009]	0.146*** [0.039]
(log) Company Age	-0.018 [0.029]	0.054** [0.022]	0.003 [0.042]	0.003 [0.038]	0.004 [0.015]	0.051** [0.021]	0.286*** [0.082]
Serial Founder	-0.009 [0.045]	0.081** [0.033]	-0.097** [0.041]	-0.071 [0.056]	-0.014 [0.015]	0.033 [0.032]	-0.132 [0.104]
Serial Founder with IPO	-0.090** [0.044]	-0.026** [0.012]	0.119* [0.068]	0.039 [0.090]	0.04 [0.045]	-0.108 [0.071]	0.262* [0.156]
Serial Founder with Merger	-0.059 [0.050]	-0.023*** [0.009]	0.091* [0.054]	0.058 [0.073]	-0.003 [0.026]	0.021 [0.047]	0.285* [0.162]
(log) Number of VCs in Round	0.098** [0.042]	0.023 [0.019]	0.120*** [0.040]	0.043 [0.047]	0.021 [0.017]	-0.079** [0.032]	0.599*** [0.094]
(log) Total Round Amount	-0.01 [0.015]	-0.013** [0.007]	-0.027 [0.017]	0.029 [0.020]	-0.015* [0.008]	0.016 [0.014]	
VC and Company in Same State	-0.069* [0.041]	0.015 [0.020]	-0.007 [0.038]	-0.023 [0.049]	-0.005 [0.019]	0.013 [0.027]	-0.321*** [0.096]
(log) VC Experience	-0.063*** [0.012]	-0.020** [0.008]	-0.023 [0.024]	-0.049*** [0.018]	-0.003 [0.010]	-0.026** [0.011]	0.146*** [0.035]
VC Partnership	-0.080** [0.032]	-0.009 [0.012]	-0.045 [0.043]	-0.101** [0.043]	-0.013 [0.020]	-0.012 [0.031]	0.211*** [0.073]
(log) Counsel VC # of Deals	-0.019** [0.009]	0.002 [0.003]	-0.029*** [0.010]	-0.009 [0.011]	-0.011** [0.005]	-0.014 [0.009]	0.012 [0.028]
Counsel General AmLaw Top 25	0.011 [0.033]	0.018 [0.013]	-0.008 [0.043]	-0.009 [0.036]	-0.029 [0.026]	0.029 [0.024]	-0.051 [0.119]
Observations	908	908	908	908	908	908	908
R-squared	0.21	0.18	0.1	0.18	0.15	0.18	0.54

Table VI - Downside Protection Index and Legal Counsel, Subsample Analysis

See Table I.A for sample overview. This table presents OLS regressions in which the dependent variable is DPI. Table I.B describes how Downside Protection Index (DPI) is calculated - a higher DPI means that the contract includes more investor-friendly cash flow rights. All specifications include fixed effects for VC firm location (California, Massachusetts, Texas, New York, and other), company location (state), company industry (Venture Economics 10-level classification), and round year. Constant is estimated but not reported. Standard errors are clustered by counsel and reported in brackets. Significance at 10% level marked with *, 5% with ** and 1% with ***.

Specification	1	2	3	4	5	6
Dependent Variable	Downside Protection Index					
Round Number		0.141** [0.069]	0.104** [0.049]	0.072 [0.076]		
(log) Company Age	0.089 [0.155]	0.243 [0.164]	-0.007 [0.108]	0.419** [0.186]	0.106 [0.181]	0.214 [0.318]
Serial Founder	-0.246 [0.235]	-0.11 [0.180]				
Serial Founder with IPO	0.346 [0.518]	-0.159 [0.203]		-0.135 [0.181]		-0.128 [0.766]
Serial Founder with Merger	-0.169 [0.278]	0.114 [0.233]		-0.259 [0.167]		0.387 [0.429]
(log) Number of VCs in Round	0.676*** [0.255]	0.037 [0.122]	0.318** [0.140]	0.055 [0.209]	0.746** [0.323]	1.020* [0.561]
(log) Total Round Amount	-0.063 [0.076]	-0.036 [0.056]	-0.088* [0.052]	0.017 [0.091]	-0.108 [0.094]	-0.017 [0.191]
VC and Company in Same State	-0.05 [0.203]	-0.136 [0.141]	-0.12 [0.147]	-0.108 [0.199]	-0.482** [0.236]	0.603 [0.439]
(log) VC Experience	-0.270*** [0.070]	-0.193** [0.076]	-0.225*** [0.068]	-0.265** [0.117]	-0.247*** [0.087]	-0.341** [0.149]
VC Partnership	-0.116 [0.231]	-0.547*** [0.145]	-0.338** [0.133]	-0.509** [0.242]	-0.112 [0.293]	0.068 [0.580]
(log) Counsel VC # of Deals	-0.231*** [0.061]	-0.098*** [0.034]	-0.173*** [0.035]	0.057 [0.062]	-0.295*** [0.071]	-0.148 [0.127]
Counsel General AmLaw Top 25	-0.093 [0.203]	0.033 [0.126]	0.005 [0.135]	-0.332 [0.205]	-0.069 [0.260]	-0.188 [0.665]
Observations	284	624	693	215	221	63
R-squared	0.38	0.25	0.25	0.43	0.41	0.80
Sample	1st Round	Follow-Up Round	First-Time Founder	Serial Founder	1st Round First-Time Founder	Follow-Up Round Serial Founder

Table VII - Overview Legal Counsel and Round, and Company Characteristics

*One observation is one contract between a venture-backed company and its VC investors. Each contract is matched by company name and round date with an investment round listed in Venture Economics. Statistical significance is marked with *** 1%, ** 5% and * 10%.*

	Subsample 1		Subsample 2		Subsample 3		Subsample Difference		
	Top 3 VC Legal Counsel Ranked by Sample Companies (N=266)		Legal Counsel With 10 or More Sample Companies But Not Top 3 (N=326)		Legal Counsel With Fewer than 10 Sample Companies (N=316)		Comparison of Means (Wilcoxon Rank Sum Test for Dummy Variables, T-Test for Other Variables.)		
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	1 and 2	1 and 3	2 and 3
<u>Round Characteristics</u>									
Round Number	2.91	1.55	2.79	1.58	2.74	1.61	0.12	0.17	0.05
Total Round Amount (\$000s)	12400	12400	12800	13600	11700	13600	-400	700*	1100
Number of VCs in Round	4.23	2.49	4.40	2.78	4.29	2.64	-0.18	-0.06	0.11
<u>Company Characteristics</u>									
Company in California	0.58	0.49	0.64	0.48	0.27	0.44	-0.06	0.31***	0.37***
Company in Massachusetts	0.04	0.19	0.14	0.35	0.14	0.35	-0.10***	-0.10***	0.00
Company in Texas	0.09	0.28	0.02	0.15	0.09	0.29	0.06***	-0.01	-0.07***
High Technology Industry	0.42	0.49	0.40	0.49	0.34	0.48	0.02	0.08*	0.05
Life Science Industry	0.27	0.44	0.31	0.46	0.31	0.46	-0.04	-0.05	0.00
Company Age	4.25	2.69	4.00	2.80	4.07	2.75	0.25	0.18	-0.07
Serial Founder	0.22	0.41	0.27	0.45	0.22	0.41	-0.05	0.00	0.06*
Serial Founder with IPO	0.05	0.22	0.09	0.28	0.06	0.24	-0.04*	-0.01	0.03

Table VIII - Outcome and Legal Counsel

Sample is U.S. companies for which the first VC financing occurred between 1983 and 2002. Sample is limited to companies which are represented by a law firm from contract data sample. Regression models 1-3 are probit regressions where the dependent variable takes the value 1 if the company had an IPO, and 0 otherwise (acquired, merged, failed or remain private and independent). In regression models 4-6, the sample is limited to companies that did not have an IPO. Models 4-6 are probit regressions where the dependent variable takes the value 1 if the company was acquired or merged, and 0 otherwise (i.e. failed or remain private and independent). In regression models 7-8, the sample is limited to companies that either had an IPO or were acquired/merged. Models 7-8 are OLS regressions where the dependent is the log number of years between the first VC financing round and the exit. All specifications include fixed effects for VC firm location (state), company location (state), company industry (Venture Economics 10-level classification), and round year. Constant is estimated but not reported. Standard errors are clustered by counsel and reported in brackets. Significance at 10% level marked with *, 5% with ** and 1% with ***.

Specification	1	2	3	4	5	6	7	8
Dependent Variable	IPO=1, no IPO=0			Merger/Acquisition=1, no M/A=0			(log) Years to Exit	
(log) Company Age	0.017** [0.008]	0.018** [0.008]	0.021*** [0.008]	0.02 [0.012]	0.019 [0.012]	0.025** [0.013]	-0.058 [0.016]***	-0.035 [0.015]**
Early Stage Dummy	-0.051*** [0.015]	-0.050*** [0.015]	-0.052*** [0.016]	0.067*** [0.018]	0.062*** [0.018]	0.059*** [0.019]	0.154 [0.037]***	0.143 [0.035]***
(log) Number of VCs in Round		0.011** [0.005]	0.009 [0.006]		0.010* [0.006]	0.005 [0.006]	-0.007 [0.007]	-0.02 [0.006]***
VC and Company in Same State		0.01 [0.019]	0.01 [0.019]		-0.004 [0.035]	-0.001 [0.035]	0.024 [0.034]	0.027 [0.030]
(log) VC Experience		0.013*** [0.004]	0.012*** [0.005]		0.022** [0.010]	0.019* [0.010]	-0.027 [0.013]**	-0.031 [0.013]**
VC Partnership		-0.043 [0.029]	-0.044 [0.029]		0.019 [0.036]	0.02 [0.036]	0.065 [0.057]	0.06 [0.057]
(log) Total Amount Raised in All Rounds			0.014** [0.006]			0.031*** [0.008]		0.105 [0.012]***
(log) Counsel VC # of Deals	0.006 [0.007]	0.006 [0.007]	0.005 [0.007]	0.01 [0.006]	0.006 [0.006]	0.005 [0.006]	0.004 [0.012]	-0.001 [0.011]
Counsel General AmLaw Top 25		0.045 [0.035]	0.042 [0.034]		-0.013 [0.027]	-0.019 [0.028]	0.096 [0.040]**	0.07 [0.039]*
Observations	3087	3087	3087	2540	2540	2540	2191	2191
R-squared	0.25	0.26	0.26	0.09	0.09	0.1	0.21	0.29
Sample	Full	Full	Full	non-IPO	non-IPO	non-IPO	IPO/Acq	IPO/Acq