

Relational Venture Capital Financing of Serial Founders

Abstract

This study examines how often and why a serial founder receives financing for his new company from a venture capital (VC) firm that also invested in his previous company. Only one in ten VC investments leads to a repeated relationship and only one in three serial founders enters into a repeated relationship with any previous VC firm. A repeated relationship is more likely when the relational VC firm has acquired more private information about the founder, but less likely if the founder's new venture has a bad fit with the VC firm's geographic or industry focus. My findings add to the literature on relational financing by showing that the preservation of information is an important motivation for relational financing when screening and monitoring costs are high. Yet, repeated relationships appear to be relatively uncommon partly because investors also respond to information problems by specializing in certain types of firms.

I. Introduction

Relationships are believed to be advantageous in overcoming information problems in finance (Black, 1975; Diamond, 1984; Fama, 1985). Although relational financing has received considerable attention in the literature, almost all of the existing evidence comes from lending situations involving banks. A number of papers show that banks frequently engage in relational lending and that strong bank relationships provide corporate borrowers with easier and cheaper access to credit.¹ At the same time, preservation of information and hence relational financing is likely to be important in a range of other empirical settings.

This paper investigates financing relationships in a previously unexplored setting, the venture capital (VC) industry, which during the last decades has grown to become an important part of the U.S. economy. Serial founders are an important subgroup of the individuals who found companies that are financed by VC firms. As reported by Gompers et al (2008a), about 10% of all founders have previously started another venture-backed company, and such serial founders are associated with significantly higher success rates than first-time founders. I study empirically how often a serial founder receives financing for his new company from a VC firm that also invested in the same founder's previous company, thereby engaging in a repeated VC relationship. I specifically investigate what roles the preservation of private information and investor specialization play in the formation of repeated VC relationships.

Repeated VC relationships are interesting to study from a theoretical perspective because this setting is ripe with information problems between borrower and investor, which could be overcome by relational financing arrangements. A VC firm that has financed a serial founder's previous company has had the opportunity to acquire significant private information about the founder through its earlier due diligence, monitoring and active involvement (Gorman & Sahlman, 1989; Kaplan & Strömberg, 2004; Lerner, 1995; Hellmann & Puri, 2002). Private information about a serial founder may be valuable given

¹ Ongena and Smith (2001), Bharath et al (2007a), and Radhakrishnan, Udell and Yerramill (2007) show that relationships between banks and corporate borrowers are common. Petersen and Rajan (1994) and Cole (1998) demonstrate that relational bank lending gives companies better access to credit. Evidence that bank relationships reduce borrowing costs are found by Berger and Udell (1995), Hellman, Lindsey and Puri (2008), Bharath et al (2007b), and Ivashina and Kovner (2007). James (1987) and Lummer and McConnell (1989) show that renewing bank relationships leads to a positive stock market reaction.

the important role of human capital in the early stages of venture-backed company lifecycles (Kaplan, Sensoy & Strömberg, 2009; Gompers et al, 2008a) and the high monitoring and adverse selection costs that are endemic to investing in such companies. Thus, if the preservation of information were the primary motivation for relational financing then relationships would be commonplace in the VC setting.

This line of reasoning is, however, incomplete because the presence of high information costs often leads investors to specialize into certain types of borrowers and to narrow their investment focus. Previous studies have established that VC firms frequently specialize along industry and geographical dimensions (Gupta & Sapienza, 1992; Norton & Tenenbaum, 1993; Sorensen & Stuart, 2001; Hochberg, Ljungqvist & Lu, 2008, and Gompers et al, 2008b). A serial founder may therefore achieve the most efficient matching arrangement not with a relational VC but instead with a non-relational VC whose due diligence and monitoring skills better match the characteristics of the founder's new company. If the impact of investor specialization were to dominate the value of preserving private information through relational financing, then repeated financing relationships would not be commonplace in situations, such as the VC setting, in which information costs are high.

In this paper I investigate the empirical prevalence of repeated VC relationships by analyzing a hand-collected sample that comprises 3,540 VC involvements for 637 serial founders of U.S. venture-backed companies. I demonstrate that only one out of ten VC involvements leads to a repeated relationship and only one in three serial founders has a repeated relationship with any previous VC investor. By comparison, the probability that a company's involvement with a lead bank leads to a relational relationship ranges between 42% and 52% (Radhakrishnan, Udell & Yerramill, 2007, Bharath et al, 2007a and 2007b).

The finding that repeated relationships between serial founders and a particular VCs are relatively uncommon could, when analyzed in isolation, be interpreted as evidence that VC financing is not motivated by the preservation of information but instead done primarily at arms-length. According to this explanation, repeated relationships have little value because private information about a founder plays no central role when a VC firm evaluates a business plan. Importantly, I show by exploring cross-sectional differences in the propensity of relational financing that this explanation is incorrect. Preserving

information about a founder is an important motivation for relational VC financing but is counteracted by the need for a good match between specialized VC firms and the founder's new company. Thus, my results indicate that repeated relationships are on average uncommon because the information acquired by most VC firms is not valuable *enough* to outweigh the cost of a suboptimal match and other potential costs associated with relational financing.

A univariate comparison of the most extreme cases in my sample illustrates the empirical relevance of the tradeoff between preserving information about a serial founder and obtaining a good match between company and VC firm. The probability that repeated relationships occur is 67% for the nine sample VC firms that have had both the strongest and most recent involvement with the founder (and thereby the best opportunities to acquire private information) and the best possible industry and geography match with the founder's new company. The corresponding probability is 0% for the 51 sample VC firms that have had the weakest involvement and the worst possible match.⁵ Hence, my results are consistent with VC firms behaving in some financing situations like informed investors that engage in relational financing and at other times like uninformed arms-length investors.

In my more detailed analysis I formalize the intuition behind the tradeoff between the preservation of information and finding an optimal match. I develop a number of hypotheses that follow from the argument that relational financing is motivated by the preservation information. I then test these hypotheses by exploring how cross-sectional differences in VC firm and company characteristics are related to the formation of repeated relationships.

I first test how private information about a serial founder affects the propensity of VC firms to engage in relational financing. Consistent with the hypothesis that relationships are repeated to capitalize on private information, I find that VC firms that have more proprietary information about the founder are also more likely to engage in relational financing. More specifically, I show that repeated relationships are more likely for VC firms that either held a board seat in the founder's previous company, were located geographically close to the company, had a longer involvement in the company, or that are organized as private partnerships. The magnitudes are large—a VC firm that held a board seat in the founder's

⁵ See section V.G or table 4 for an exact definition of how these two groups are formed.

previous company is twice as likely to also be an investor in the same founder's new company. Overall, the most-involved VC firms are more than six times more likely than the least-involved VC firms (26% versus 4%) to have a repeated relationship.

I find further evidence consistent with the thesis that information is an important factor in determining the choice to engage in relational VC financing. The probability of a repeated relationship decreases with the relevance of the information, which is measured by the number of years between the founder's previous and new companies. Moreover, if a founder has many VC investors in his previous company then each individual VC firm has less private information and should therefore be less likely to form a repeated relationship. I find supportive evidence for this hypothesis.

I next test the hypothesis that suboptimal matching of specialized VC firms leads to discontinued relationships. VC firms are specialized investors who frequently turn down potential investments that are outside their preferred investment focus. When a serial founder starts companies with disparate industry and location characteristics, which happens relatively frequently in my data, VC firm specialization and narrow investment focus predispose these investors against relational financing. I show that a founder whose previous and new companies are in different industries or geographically distant from each other have a lower probability of forming a repeated relationship. In illustration, the probability of a repeated relationship with a particular VC firm is about 12% for a serial founder whose previous and new companies are located in the same U.S. state as compared with 7% for a serial founder whose companies are in different U.S. states. The comparable probabilities of having any repeated relationship are 22% and 30%.

The final step in my empirical analysis is to study the involvement of VC firms in a serial founder's new company. If the capitalization of information is one of the major motivations behind repeated VC relationships, then relational VC firms should use their private information to pursue stronger involvement in a founder's new company. I test this hypothesis and find that three in four of all relational VC firms invest in the first financing round as compared with less than half of new VC firms. A relational VC firm is also more likely to be involved in the company by means of holding a board seat in the founder's new company. I find evidence of "board seat persistence," by which I mean that a relational

VC firm that held a board seat in the founder's previous company invests earlier and is more likely to hold a board seat in the new company, as compared with a relational VC firm that did not hold a board seat in the founder's previous company.

As discussed above, my interpretation of the cross-sectional findings builds on the argument that repeated VC relationships arise as a mechanism to preserve the VC firm's private information about the founder. However, it is also possible that the founder's private information about the VC firm could play an economic role. VC firms have the ability to add value to the companies they finance and to exercise powerful control rights (Hellman, 1998; Cumming, 2008). The active involvement of VC firms implies that a founder must carefully evaluate and select his investors. An alternative interpretation to my cross-sectional results on which VC firms engage in relational financing is that such relationships are motivated by serial founders seeking to preserve private information about VC firms. Even though this explanation is on some level different from the one proposed in my theoretical discussion, it does not alter the overall conclusions of this paper. The preservation of information—whether about serial founders or VC firms—constitutes an important reason for relational VC financing but many potential relationships are never formed due to costs associated with a suboptimal match between serial founders and specialized VCs.

While this paper is the first to study relational financing in the VC setting, the choice of continuing or ending financing relationships on the part of banks has previously been studied by Ongena and Smith (2001), Bharath et al (2007b), and Radhakrishnan, Udell and Yerramill (2008). Apart from studying relational financing in a previously unexplored setting, I also contribute to the literature on relational financing by analyzing repeated financing relationships *between* companies and not on relationships *within* a particular company (which is the focus of studies on bank relationships). This difference is important because follow-up financing events within a company, although interesting to explore, are potentially affected by the need of existing investors to maintain control and cross-subsidize earlier investments. By researching relational financing between separate companies I am able to remove the effects of such motivations and isolate the specific role of information about human capital in investment decisions.

A further benefit of studying relational financing between venture-backed companies is that it permits the identification of a causal link between investor involvement and the propensity to engage in a repeated relationship. This causality is hard to prove for banking relationships because banks are likely to make early investments in a company with the expectation that they can leverage information by building a long-term lending relationship (Sharpe, 1990; Rajan, 1992). VC firms are very unlikely to make the strategic choice of investing in a founder based on the expectation that the founder will many years later start a new company and thereby potentially have a repeated relationship with his previous VC investors.⁷

The remainder of the paper is structured as follows. Section II develops a set of hypotheses on the basis of which I test why VC financing relationships are repeated. Section III describes how the data is collected and presents summary statistics. Section IV discusses empirical results related to the average fraction of repeated relationships, and section V discusses results related to understanding why VC firms and serial founders form repeated relationships. Section VI reviews results related to VC involvement in the founder's new company. The paper ends with a brief concluding discussion, in which I consider other possible reasons why relational VC financing is relatively rare.

II. Hypothesis Development

This section develops testable hypotheses on relational financing based on the argument that relational financing is valuable because it preserves valuable information about borrowers.⁸ This theoretical argument hinges formally on three assumptions. First, the investor must collect some information about a company in which it is considering making an investment that is not publicly available (or prohibitively costly to obtain). Second, this information must be “reusable,” i.e., it must reduce the costs of future transactions between the investor and the company seeking financing. Third, the benefit of preserving information must be higher than any costs associated with relational financing.

⁷ The probabilities of a founder becoming serial founder (10%) and a VC investment's leading to a repeated relationship with such founder (10%) are so low that is unlikely that VC firms let the possibility of a repeated relationship affect their investment decisions.

⁸ Alternative arguments for relational financing are discussed in Section VII.

Although VC firms are in many important ways functionally different from banks, the first two assumptions are likely to hold true in venture financing of entrepreneurial companies.

As investors in early-stage high-growth companies that typically operate in undeveloped industries, VC firms are forced to spend considerable time and resources performing due diligence with respect to potential investment targets. One important part of this pre-investment screening is evaluating the quality of a company's founders (Kaplan & Strömberg, 2004; Bengtsson et al 2005). VC firms also seek information about company founders from active post-investment monitoring of portfolio companies—executives at VC firms sit on boards of directors and meet regularly with company founders and their management teams (Gorman & Sahlman, 1989; Hellmann & Puri, 2002; Wongsunwai, 2008). These activities provide VC firms with significant information about a company and its founders. VC firms therefore clearly satisfy the first assumption needed for relational financing to be important.

The second assumption needed is that the information that VC firms collect about a founder remains relevant when this founder starts a new company. For this to hold true, the general talent of founders—not their company-specific skillsets—must be important to the success of a venture-backed company. VC firms typically rank information about founders as the most important input, and statements like “We would rather invest in an A-level management team with a B-level idea than in a B-level management team with an A-level idea” are commonplace in the VC industry. Hsu (2007) shows evidence that founders are indeed important in a company's early stages with companies founded by previously successful founders receiving higher VC valuations. The most direct evidence that founder quality matters is found in Gompers et al (2008a). Companies started by serial founders whose previous companies were successful are significantly more likely to become successful than companies started by other founders. Kaplan, Sensoy, and Strömberg (2009) present evidence that indicate that the importance, or at least the long-run importance, of founders may be somewhat exaggerated because many founders are actually replaced as CEOs. Given the importance of founders, at least in the formative stages of a company, it is likely that a VC firm's proprietary information about a founder remains valuable when this founder starts a new company as well.

From the preceding discussion it follows that, if information is one of the main drivers behind repeated relationships between VC firms and serial founders, then we would expect such relationships to be more common when a VC firm has collected more information about a founder. Active involvement on the part of VC firms generates proprietary information that increases the value of relational financing. Thus, repeated relationships should be more common among VC firms that have been more actively involved in a founder's previous company.

Hypothesis 1. A repeated relationship between a VC firm and a serial founder is more likely to occur the stronger is the involvement the VC firm has had with the founder's previous company.

The information that VC firms collect about founders is more relevant and thereby more reusable if a shorter amount of time has elapsed before the founder starts a new company. There are two reasons for the time decay of information value. First, executives in a VC firm are more likely to remember information acquired in more recent meetings and other exchanges with a founder. Second, if a founder's talent improves or deteriorates over time (due to new work or life experiences) then information about the founder becomes less accurate over time.

Hypothesis 2. A repeated relationship between a VC firm and a serial founder is more likely to occur the more recent is the VC firm's involvement with the founder.

A typical founder is likely to have many VC investors investing in his company; most venture-backed companies receive more than one investment round and many investment rounds are syndicated. When the number of VC firms increases, each VC firm experiences fewer possibilities and weaker incentives to acquire private information. Although syndicated VC financing rounds typically have a lead VC firm that takes a leadership role on screening and monitoring, other VC firms in the round also closely observe and interact with the company and its founders. This argument suggests that a serial founder with fewer possible relationships should be more likely to repeat a particular VC relationship.⁹ This prediction has been empirically validated for banks—Ongena and Smith (2001) find that firms that

⁹ This argument does not predict whether the probability of having a repeated relationship with *any* VC increases or decreases with the number of VC firms. This depends on whether the direct effect of having more previous investors dominates the lower probability that each such investor will form a repeated relationship.

maintain multiple-bank relationships are more likely to end a bank relationship than single-bank firms are.

Hypothesis 3. A repeated relationship between a VC firm and a serial founder is more likely to occur the fewer investors the founder has had.

It is important to note that Hypothesis 3 could also be derived in a model with no information frictions. Some founders may for some reason have access to larger networks of potential VC investors. The large network permits such founders to first receive financing for their first companies from a larger number of VC firms, and then receive financing from other non-relational VC firms from their network. If the network of a founder is unobservable then it is very hard to empirically separate this explanation from the information motivation that forms the basis for Hypothesis 3.

The third assumption on which the claim that relational financing is valuable is based is that the associated costs have to be lower than the value of preserving information. My study has an advantage in focusing on relational financing *between* companies and not *within* a company, namely that this strategy limits the number of possible types of costs involved. For example, repeated relationships of the types studied in this paper are not likely to end because a VC firm would want to diversify its portfolio by minimizing its risk exposure in any given company or because of conflicts between different VC investors within a company. Similarly, relationships are not likely to continue because VC firms want to salvage previous investment rounds or maintain a controlling stake in a company.

Investing in a serial founder on the part of the same VC firm does however come at a clear potential cost—suboptimal matching between a VC firm and the serial founder’s new company. A VC firm must do careful due diligence and engage in post-investment monitoring, and must therefore have a good understanding of the industry in which a portfolio company operates. As a result, most VC firms restrict their investments to one industry segment (Sorensen & Stuart, 2001), and such specialization improves the probability of successful company outcomes (Gompers et al, 2008b). When a founder starts his previous company he chooses VC investors that specialize in that company’s industry segment. When that same founder subsequently launches a new company in a different industry segment, the previous VC investors are unlikely to find a similarly optimal match with the founder’s new company. Thus

suboptimal industry matching represents a potential cost of a repeated relationship between the VC firm and the serial founder.

Hypothesis 4a. A repeated relationship between a VC firm and a serial founder is more likely to occur if both companies founded by the founder are in the same industry segment.

The above argument could be extended to geography; VC firms typically focus their investments in geographical areas (Gupta & Sapienza, 1992; Norton & Tenenbaum, 1993; Sorensen & Stuart, 2001; and Hochberg, Ljungqvist & Lu, 2008). When a founder starts his previous company he chooses VC investors that specialize in that company's location. When that same founder subsequently launches a new company in a different location, the previous VC investors are again unlikely to have an optimal match with the founder's new company. Thus suboptimal geography matching represents a potential cost of a repeated relationship between the VC firm and the serial founder.¹⁰

Hypothesis 4b. A repeated relationship between a VC firm and a serial founder is more likely to occur if both companies founded by the founder are geographically close to one another.

The hypotheses I have offered so far yield predictions about when a VC firm should be more likely to engage in relational financing. The following two hypotheses relate to the financing of the founder's new company. If repeated VC relationships are motivated by the value of preserving and capitalizing on information about a founder, then the financing of the founder's new company should be structured so that as much information as possible can be reused. This could be achieved by choosing a relationship VC (i.e., a VC firm that also invested in the founder's previous company) that is more involved in the founder's new company as compared with other VC firms, which are by comparison more uninformed. Put differently, if a relationship VC firm takes the role of a passive investor in the new company, then less information is reused because the VC firm is not actively screening, monitoring, and in other ways interacting with the founder.

Hypothesis 5. A VC firm in a repeated relationship with a serial founder should be more involved in the founder's new company as compared with other VC firms.

¹⁰ Hypotheses 4a and 4b could also be motivated on the grounds that the VC firm's information about a serial founder is more valuable if his new company has characteristics similar to those of his previous company.

The argument that VC investments should be structured so that information about a founder can be capitalized on implies persistence in VC involvement with the founder's companies. A VC firm that was more involved in the founder's previous company has more valuable information about the founder. As such, a VC firm that was more involved should not only be more likely to have a repeated relationship, as stated by Hypothesis 1, but also should be more involved in the founder's new company.

Hypothesis 6. A VC firm that was more involved in a serial founder's previous company should be more involved in the founder's new company as compared with a VC firm that was less involved in the founder's previous company.

III. The Data

A. Serial Founders and Company Pairs

While a number of database providers collect information about VC firms, portfolio companies, and investment rounds, there exists no publicly available comprehensive dataset on founders. The sample of serial founders used in this paper is hand-collected, as follows. First, I extract a list of all individuals who are listed as founders of U.S. venture-backed companies in either VentureEconomics (also called VentureXpert) or CapitalIQ, both of which are databases with extensive coverage of venture-backed companies.¹¹ As shown in table 1, panel A, this initial sample consists of 9,385 founders. Second, I run an extensive search for the vitae of each of these 9,385 founders, using CapitalIQ, Zoominfo, Lexis-Nexis, company Web pages, and press releases. Based on the information in the vitae I eliminate any founder who is either an employee or an entrepreneur-in-residence of a VC firm. Third, I eliminate all founders who, according to their vitae, are one-time founders, which I define as individuals who have founded only one venture-backed company.¹² To be counted as a venture-backed company in my sample, the company must be located in the U.S., be operating at an early or expansion stage at the time of its first VC investment round (this restriction eliminates mezzanine and buyout deals), and have company and VC

¹¹ An earlier and substantially different version of this paper, "Repeated Relationships between Venture Capitalists and Entrepreneurs," relied on a different sample from VentureEconomics that also included non-founding entrepreneurs.

¹² Some one-time founders may have founded more than one *non*-venture-backed company but they are excluded from my sample because they cannot have repeated VC relationships.

variables are available in VentureEconomics. The elimination of serial founders for whom VentureEconomics lacks relevant data at the time is likely to affect the sample randomly and should not bias my empirical results.

Finally, I eliminate 140 serial founders whose two companies receive their first financing rounds more than 10 years apart. As further explored in the below empirical analysis (see Section IV.B), the propensity to form a repeated relationship declines significantly over time. While the 10 year cutoff is admittedly somewhat arbitrarily chosen, my data reveals that founders starting companies that are further apart than one decade are less than half as likely as founders starting companies within this time window. Part of the premise of this paper is to test the role of private information on relational financing, so imposing this restriction is reasonable because the value of private information is likely to be limited after a decade. In untabulated regressions, I eliminate this sample restriction and find that this does not change the magnitude or statistical significance of estimated coefficients.

<< *INSERT TABLE 1 ABOUT HERE* >>

In another study of VC financing of serial founders, Gompers et al (2008a) use a hand-collected sample of founders to study whether entrepreneurial talent matters to the success of startup companies. My sample differs from theirs in two ways. I extract my founder data from VentureEconomics and CapitalIQ, whereas Gompers et al use data from VentureSource. My sample also includes founders whose companies were founded after 2001.

Table 1, panel B summarizes the sample. The final sample includes 637 individuals, a majority of which (81%) have founded exactly two companies. The main unit of observation throughout this paper is a company pair for a serial founder, with each pair consisting of two companies that were sequentially started by the same founder. A founder of exactly two companies has one company pair. A founder of exactly three companies has two company pairs, with the first company pair including the founder's first and second companies and the second company pair including the founder's second and third companies. For each company pair I denote the founder's first company as the "previous company" and the founder's second company as the "new company." My sample combines all company pairs and I include the

sequential order of each member of a company pair as a control variable in empirical tests. The total number of company pairs is 776.

As shown in table 1, panel C, the majority of all companies are in high-tech-related industries with headquarters in California.¹⁴ Although the sample frequencies along the industry and geography dimension look remarkably similar for the founders' previous and new companies, this does *not* mean that serial founders almost always start new companies in the same industry and location as their previous companies. As further discussed in section III.C, about one quarter of the serial founders in my sample start new companies in different industry groups and about one quarter move to different U.S. states. The similarity in frequencies for the founders' previous and new companies demonstrates, however, that the aggregate industry and geography movements to a large degree offset each other in my sample. Thus, while a number of serial founders whose previous companies were in the high-tech industry launch their new companies in another industry group, approximately the same number of other serial founders whose previous company was in another industry group launch their new companies in the high-tech industry. A similar pattern, although less pronounced, is found for geography movements.

Figure 1 shows the distribution of company pairs by the year of the first VC investment round. Most previous companies are confined to the pre-2001 period, suggesting a potentially significant overlap between my sample and that of Gompers et al (2008a). Figure 2 shows the distribution of company pairs by the difference in years between the first and new companies. A serial founder waits, on average, 4.4 years between the first financing round of his previous company and that of his new company, but as seen in figure 2 there is in this respect significant variation among founders.

<< *INSERT FIGURE 1 ABOUT HERE* >>

<< *INSERT FIGURE 2 ABOUT HERE* >>

B. VC Investments

For each company pair, I extract data from VentureEconomics on all venture capital firms that invested in either the founder's previous company or his new company. Thus, the unit of analysis

¹⁴ Life sciences include biotechnology and the medical/health industries.

throughout this paper is a VC firm (versus an individual partner who is employed by the VC firm). I restrict the sample to VC firms that are identified by name. Also, for the previous company I include only VC firms that invested prior to the first round of the founder's new company. By imposing this restriction I limit my study to relationships that repeat from the previous to the new company. This restriction is natural since my research question is how and why founders repeat relationships with VC firms from a previous involvement. VC firms that invest in many rounds for the same company are included as one observation with VC variables reflecting the VC firm's first investment in the company.

My final sample includes 3,540 VC investments in the founder's new company and 3,790 VC investments in the founder's previous company. One trivial reason that sometimes explains why serial founders do not have repeated relationships with a particular VC firm is that the VC firm was inactive and did not invest in any companies at the time of the first round of the founder's new company. VC firms could be inactive since the funds that they manage have fixed time period during which investments take place (typically 4-7 years) and many VC firms are not able to raise follow-up funds. I define the VC firm as an inactive investor if it made no investment in a three year window around the time of the first round of the founder's new company. Because an inactive VC firm does invest in the founder's new company for reasons unrelated to relational financing motivations, I exclude such VC investments from the sample used in the cross-sectional tests. The majority of VC firms (3,356 or 89%) in the founder's previous company are still active investors when the founder starts his new company.

C. Company-level Summary Statistics

Summary statistics are shown in table 2. Panel A reports company variables with one observation counting as one company pair. The figure indicating VC investors in all investment rounds ("Number of VC Investors") for the average previous company is almost 5 unique investors, of which about 2 are investors in the first round ("Number of First Round VC Investors"). The figures pertaining to the new company are similar in magnitude.

<< *INSERT TABLE 2 ABOUT HERE* >>

One key dimension of a VC investment is the industry in which the new company operates. The new company of a serial founder could be in either the same industry or the same geographical area as his previous company. I use the VentureEconomics 9-level industry segment classification and also construct a 3-level industry segment classification, with “Biotechnology” and “Medical/Health” labeled as “Life Science”; “Computer Hardware,” “Computer Software,” “Internet Specific,” and “Semiconductors/Other” labeled as “High-Tech”; and “Other Products,” “Industrial/Energy,” “Consumer Related,” and “Communications and Media” labeled as “Other.” I find that 72% of all company pairs are in the same 3-level industry segments.¹⁵ Thus, more than one in four serial founders starts a new company which falls under a different primary industry group classification. This result does not imply that the companies of such serial founders have completely disparate characteristics. The two firms could be similar to each other along other important dimensions such as using a similar technology, working with the same customer type, and having the same strategic partners.

Another key dimension of VC investment is geography. I use zip-code data to locate the headquarters of each company and then compare the locations of a founder’s previous company and that of his new company. I find that 76% of all company pairs are in the same U.S. state and 25% are in the same city. That is, one in four serial founders locate the headquarters of the new company in a different state and three out of four founders in a different city. From zip-code data I calculate the actual distance between the two companies, which on average is 641 kilometers (398 English miles).

D. VC-level Summary Statistics

Variables describing VC firm characteristics are reported in panel B on the “VC Involvement” level, where one observation equals one VC investor in a company pair. Typically one or a few VC firms in a financing round take the role of lead investors and become the most involved investors in the company. VentureEconomics does not identify whether a VC firm is a lead investor but has data on which

¹⁵ Only 42% of founder involvements are in the same industry if the VentureEconomics 9-level segment classification is used. This result suggests that the 9-level segment classification is too narrow to define an actual industry segment in which most founders operate. I therefore use the 3-level segment classification in most of my empirical tests.

VC firms hold board seats. For each VC firm and company I let the dummy “Board Seat” capture whether an executive at the VC firm also sits in a board seat. In the founder’s previous company, 12% of VC firms are reported to hold a board seat while this number is 46% for the founder’s new company. The difference in board fractions between previous and new companies reflects the improved sample coverage in VentureEconomics for later sample years. All regressions control for this sample coverage effect by including year-fixed effects (and also state- and industry-fixed effects).

IV. Empirical Results on the Average Fraction of Repeated Relationships

I examine how common, on average, are repeated financing relationships between VC firms and serial founders. I create a set of dummy variables for each company pair that captures whether the same VC firm invests in both the founder’s previous and new companies. A venture-backed company typically conducts many investment rounds, and a repeated relationship could be established either between first-round VC firms or between VC firms that invested in any round. Table 3 reports for each panel three different statistics for repeated relationships: (i) any round VC-any round VC, (ii) any round VC-first round VC, and (iii) first round VC-first round VC.

<< *INSERT TABLE 3 ABOUT HERE* >>

A. VC Level

I first calculate the probability that *a particular VC* has a repeated relationship. As shown in panel A, I find that 9% of VC firms investing in any round in a founder’s previous company are also investors in any round in the new company, and 7% are investors in the first round in the new company. Restricting the sample to VC firms that were investors in the first round (and possibly also in later rounds), repeated relationships are only slightly more common, as 11% of all VC firms are also investors in the first round in the new company. Panel B reports the same probabilities but excludes VC firms that were not active investors at the time of the financing of the new company. Because 89% of all VC firms are active, the average fractions reported in panel B are similar to those reported in panel A—around 11% of any-round VC firms engage in a repeated relationship as well as 8% of first-round VC firms. From this I conclude

that repeated relationships are uncommon even for VC firms that, by virtue of still being active investors, could have invested in the founder's new company.

Panel C reports the probability that a particular VC firm that invests in a serial founder's new company was also an investor in the same founder's previous company. Of all the VC firms that invest in any round in the founder's new company, only 10% are repeated-relationship VC firms. The fraction is larger for first-round investors in the new company, of which 18% engage in a repeated relationship.

B. Company-Pair Level

A company could have multiple VC firms as investors, either because a first round is syndicated or because new VC firms join in subsequent rounds. Panel D reports the probability that *any* VC in a given company pair has a repeated relationship with a serial founder. Because each company could have many VC firms (the average is 4.9 for the previous company), this probability will be higher, mechanically, than the probability that a particular VC firm engages in a repeated relationship. I find that 33% of all company pairs engage in a repeated relationship with any VC firm. The probability that any previous VC firm is also a first-round investor in the new company is 27%. Studying only first-round VC firms, I find that 18% of all founder involvements have the same VC firm investing in the first round of both company involvements. Some companies have more than one serial founder. Panel E reports the probabilities that any founder will engage in a repeated relationship with any VC firm. I find that, for the average company, 37% of all VC firms engage in a repeated relationship (any round-any round) and 20% of all first-round VC firms are also investors in the first round in the new company.

C. Comparison with Relational Bank Lending

While it is hard to make an exact comparison when different financing situations are involved, the calculated probabilities for VC relational financing is clearly lower than what other studies have found for relational lending on the part of lead banks. Radhakrishnan, Udell, and Yerramill (2007) report that 42% of all loans to CompuStat firms originate from a lead bank that has previously financed the same company. Similar results are found in two papers by Bharath et al (2007a, 2007b)—a bank with a previous relational tie has a 42% probability of being chosen to provide a new loan, and 52% of all loans

include a lead bank with a relational tie. It is worth noting that these three papers construct measures of bank relationships only within the DealScan database. Because many loans are not reported in DealScan, the reported fractions of repeated bank lending, as acknowledged by the authors, are therefore understated.

In the next section I explore whether the tradeoff between preserving information and achieving an optimal matching could explain why relational VC financing is so uncommon. The concluding discussion (section VII) covers other potential explanations.

V. Empirical Results on the Cross-Section of Repeated Relationships

In this section I discuss results related to Hypotheses 1 – 4, all of which make predictions about when a particular VC firm that invests in a founder’s previous company should be more likely also to invest in the founder’s new company. Table 4 presents a comparison of the probability of a repeated VC relationship for different subsamples. Panels A1 and A2 show the results for my broadest empirical measure of repeated relationship, “any round VC-any round VC”, with panel A1 showing the probability that *a particular* VC firm that was involved in the founder’s previous company has a repeated relationship (N=3,356) and panel A2 showing the probability that *any* VC firm that was involved in the founder’s previous company has a repeated relationship (N=776). Panels B1 and B2 show the results for my narrowest measure, “any round VC-first round VC”, with panel B1 showing the probability that *a particular* VC firm that was involved in the founder’s previous company is an investor in the first round of the same founder’s new company (N=3,356) and panel B2 showing the probability that *any* VC firm that was involved in the founder’s previous company is an investor in the first round of the same founder’s new company (N=776).

<< *INSERT TABLE 4 ABOUT HERE* >>

While univariate comparisons are illustrative, they do not separate out the marginal effect of each variable. To do this I run a series of probit regressions where I include all the variables that I predict are relevant for the formation of repeated relationships. In order to control for specific market conditions I include year, industry (3-level segment), and state controls in all regression models. All models adjust

standard errors for cross-correlation by clustering residuals by previous company and coefficient estimates are adjusted to reflect the marginal effects.¹⁶

I first test Hypotheses 1 – 3, which predict how repeated relationships are related to the VC firm’s involvement in the founder’s previous company. Table 5 shows the results for regression models where the sample is 3,356 previous company investments by VC firms that are still active at the time of the first round of the founder’s new company. Models 5.I – 5.III show the results for regressions in which the dependent variable is a dummy that takes the value 1 if a particular previous VC firm also invests in any round of the new company (“any round VC-any round VC”) and Models 5.IV – 5.VI show the results where the dependent variable is a dummy capturing whether any previous VC firm also invests in the first round of the new company (“any round VC-first round VC”). Regressions in Models 5.I – 5.II and 5.IV – 5.V include all VC firms that invested in the founder’s previous company and Models 5.III and 5.VI limit the sample to U.S. private partnership VC firms.

<< *INSERT TABLE 5 ABOUT HERE* >>

A. Involvement Strength

According to Hypothesis 1, a repeated relationship should be more likely if the VC firm has a stronger involvement with the founder’s previous company. Because I am unable to precisely measure the involvement by a VC firm (VentureEconomics does not explicitly identify the lead investor of an investment round), I use four different empirical proxies for involvement strength. One advantage of this approach is that the proxies are functionally unrelated to each other, and thereby capture different dimensions of involvement strength.

The first, and probably most convincing, proxy for VC involvement is whether the VC firm held a board seat or not. A VC firm that holds a board seat monitors and interacts with company founders more frequently than a VC firm with no board seat. As shown in regressions in Models 5.I – 5.VI, “VC has Board Seat” almost doubles the probability of a repeated relationship.

¹⁶ All results that are reported as significant remain significant in unreported regressions where residuals are clustered on year, industry, or company location (U.S. state).

The second proxy is whether the VC firm is located geographically near the company's headquarters, measured by the dummy variable "VC and Company in Same State." As shown by Coval and Moskowitz (2001) and Degryse and Ongena (2005), monitoring and information collection is likely to decrease with geographical distance. Regressions in Models 5.I – 5.VI provide evidence that repeated relationships are more frequent for VC firms located close to the company. The coefficient on "VC and Company in Same State" is statistically significant and its magnitude is similar to that of "VC has Board Seat."

The third proxy is the variable "Invested in Early Stage," which measures whether a VC firm was an early-stage investor in the company. The need for monitoring is great when the company is at an early stage and has yet to realize revenues or profits (or even to create a working product). Early stage investors can collect more founder information because founder involvement declines over the company's lifecycle (Hellman & Puri, 2002; Kaplan, Sensoy & Strömberg, 2009). Models 5.I and 5.IV show supportive evidence that VC firms that are early-stage investors are also more likely to have a repeated relationship. In Models 5.II and 5.V I use "Round Number of First Investment" as a different measure of whether the VC firm was an early investor in the company, and find that this variable is only significant in Model 5.V that captures whether a particular VC firm also invested in the first round of the founder's new company.

The fourth proxy for involvement strength factors in the characteristics of the VC firm. Bottazzi, Da Rin, and Hellman (2007) show that not all types of VC firms are equally involved in a portfolio company. Compared with a financial, corporate, or government-backed VC firm, an independent private-partnership VC firm is more likely to have frequent interactions with the company, sit on the board of directors, assist in recruiting external board members and executives, and assist the company with fundraising. As shown in Models 5.I – 5.II and 5.IV – 5.V, relational financing is more common for private-partnership VC firms—the coefficient on "VC Private Partnership" represents between one-third and one-quarter of the unconditional probability of a repeated relationship.¹⁷

¹⁷ This result cannot be explained by private partnership VC firms being more likely to be active at the time of the founder's second company seeks VC financing because I condition the sample on active VC firms.

I also include “VC Located in U.S.” and “VC Number of Investments Total” in the regression models as a measure of VC firm experience. More experienced VC firms have been shown to make more successful investments partly because they add more value to portfolio companies (Sorensen, 2007; Chemmanur, Krishnan & Nandy, 2008). The process of adding value naturally gives the VC firm information about the company and the founders. The estimated coefficients on “VC Number of Investments Total” are positive but only significant in the regression in Model 6.III, where the sample is restricted to U.S. private partnership VC firms and the dependent variable is “any round VC-any round VC.”

Taken together, the empirical evidence strongly supports Hypothesis 1. Because I study relational VC financing between separate venture-backed companies, I can interpret my statistical results as evidence of a causal link, where VC involvement strength leads to relational financing. While I cannot formally prove that no VC firm chooses to become more involved in a founder’s previous company as a way to increase the probability of also being selected as an investor in the same founder’s new company, such a reverse-causality relationship is unlikely. Gompers et al (2008a) reports that only about 10% of all first-time founders become serial founders (I find a similar fraction in my sample). The low probability that a founder becomes a serial founder, in combination with the high volatility surrounding early-stage companies in undeveloped industries, makes it hard for a VC firm to predict whether a particular founder will start a new company.¹⁸ Furthermore, as shown in this paper, the probability of a repeated relationship between VC firms and a serial founder is about 10%. Taken together, this means that the joint probability that a founder will be a serial founder *and* have a repeated VC relationship is for the average VC firm approximately 1%. It is therefore very unlikely that a VC firm’s decision to become more involved in a startup company is motivated by an increase in the probability of a future repeated relationship with the same founder. This view is further supported in interviews that I have conducted with VC firm

¹⁸ While one result in Gompers et al (2007a) is that experienced VC firms are better at identifying first time founders who will become serial founders, this finding is probably better explained by a positive matching between experienced VC firms and higher-quality founders who, due to their higher quality, are more likely to start a new company.

executives. In conclusion, the causality of my empirical findings is likely to be such that involvement strength in the founder's previous company predicts a repeated relationship.

B. Recent Involvement

Hypothesis 2 states that a repeated relationship should be more likely if the VC firm has had a more recent involvement with the founder. The variable "Years Between Companies" measures the time between the first round of the founder's previous company and the new company, respectively. As shown in regressions in Models 5.I – 5.II, each year between the founding of the companies decreases the probability of a repeated relationship ("any round VC – any round VC") by 1 percentage point, which is about one-tenth of the unconditional probability. Importantly, because table 5 includes only VC firms that are still active investors during or after the founder's new company, this result cannot be explained by VC firms' not being available as potential investors of the founder's new company. In an unreported regression, I also include the square of "Years between Companies" to test for non-linearity but find no significant results.

C. Number of VC firms in the Company

As per Hypothesis 3, a particular VC firm should be more likely to have a repeated relationship when a founder has had fewer VC investors. In Models 5.I – 5.VI, I show that the probability of a repeated relationship increases by about half a percentage point for each VC investor in the founder's previous company.¹⁹ This result supports Hypothesis 3 and shows that a repeated relationship is more common when a VC firm has acquired more private information about a founder. The result mimics the findings of Ongena and Smith (2001) that relational financing for banks is less likely for companies with multiple bank relationships. While this result supports the hypothesis derived from a theory based on information frictions, it is also consistent with serial founders with more previous VC firms having access to overall larger networks of potential VC investors.

¹⁹ In an unreported regression model, I replace "Number of VC firms" with a variable that captures a VC firm's fraction of all investments in the company. This coefficient as predicted is positive and significant.

Our finding that a serial founder with a larger number of previous VC investors is less likely to enter into a repeated relationship with *a particular* VC firm does not mean that such a founder is also less likely to enter into a relationship with *any* VC firm. To test whether this is the case I run regressions where the sample is 776 company pairs and the dependent variable captures whether any VC firm that was an investor in the founder's previous company also invests in the same founder's new company. Results are reported in table 6. In regressions in Models 6.I – 6.IV, the dependent variable is a dummy that takes the value 1 if any previous VC firm also invests in any round of the new company (“any round VC-any round VC”). Regressions in Models 6.VI – 6.X are identical to regressions in Models 6.I and 6.V except that the dependent variable is a dummy capturing whether any previous VC firm also invests in the first round of the new company (“any round VC-first round VC”). The coefficient on “Number of VC firms in Company” is positive and significant in all regression models. Thus, although each particular VC firm is less likely to engage in a repeated relationship, as shown by the negative coefficient in table 5, the probability that any VC firm will engage in a repeated relationship is higher.

<< *INSERT TABLE 6 ABOUT HERE* >>

D. Industry and Geography Movement

Industry and geography specializations on the part of VC firms could help to explain why some VC relationships with a serial founder are discontinued. According to Hypothesis 4, the probability of a repeated relationship should be lower for a serial founder whose companies are in different industry segments (Hypothesis 4a) or whose companies are geographically separated (Hypothesis 4b). Empirical evidence pertaining to Hypothesis 4 is found in table 5, where the unit of observation is one VC involvement, and in table 6, where the unit of observation is one company pair. While the coefficients on “Same Industry 9-level” are significant in all models, the coefficients on “Same Industry 3-level” are significant only in Models 6.V-6.VIII, where the dependent variable is “any round VC-first round VC”. Hence, the prediction of Hypothesis 4a applies to a larger degree to first round investors than to investors in subsequent rounds. One explanation for this could be that industry matching is particularly important at a company's early stages.

I find strong support for Hypothesis 4b, according to which the probability of a repeated relationship should be lower for a serial founder whose companies are geographically separated. As shown in Models 5.I – 5.VI, the probability of a repeated relationship is lower if both of a serial founder’s companies are headquartered in the same U.S. state (“Same State”). The magnitude of the estimated coefficients corresponds to almost half of the unconditional probability of a repeated relationship. The same result is found in Models 6.I and 6.V when studying repeated relationships with any previous VC firm. As reported in Models 6.III and 6.VII, if the two companies are in the same city then a serial founder is more likely to enter into any repeated relationship. The estimated coefficients on “Same City” are larger than those on “Same State,” which suggests that close proximity is important. Models 6.IV and 6.VII show that a doubling of the “Distance in Kilometers” between a founder’s previous and new companies lowers the probability of a repeated relationship by 4-5 percentage points.

Importantly, the regressions include controls in which U.S. state the founder’s new company is located. The above results on geographical movement can therefore not simply be explained by serial founders migrating to a specific geographical area, e.g. California, and for reasons other than VC firm specialization choosing to receive financing from VC firms in California.

Hypothesis 4b yields a prediction about the empirical link between relational VC financing and the geographical distance between a founder’s two companies. This link could be motivated either by a geographical specialization on the part of the VC firm that invested in the founder’s *previous* company, or alternatively by a geographical specialization on the part of the VC firm that invested in the founder’s *new* company. A serial founder who wants to receive financing from a new VC firm that is located far from the headquarters of the founder’s previous company may choose to locate his new company nearer to that VC firm. While these two explanations are to some degree conceptually different, they both follow from geographical specialization on the part of VC firms. This means that the interpretation of my results is the same even if the location of a founder’s new company is endogenously chosen by the founder.

E. Interactions with Geographical Movement

Table 7 expands on the regression models of table 5 to include interaction variables with “Same State.” Models 7.I – 7.III show results where “any round VC-any round VC” is the dependent variable. Results where “any round VC-first round VC” is the dependent variable, as reported in Models 7.IV – 7.VI, are qualitatively similar to those reported in Models 7.I – 7.III.

Model 7.I includes an interaction between “Same State” and “Same Industry 3-level,” which is estimated with an insignificant coefficient. Thus a founder whose two companies are in different U.S. states and different industries is not less likely to enter into a repeated VC relationship than a founder whose two companies are in different U.S. states and the same industry.

<< *INSERT TABLE 7 ABOUT HERE* >>

In Model 7.II, I interact “VC and Company in Same State” and “Same State” and obtain a large and negatively significant coefficient (8 percentage points). Notably, when this interaction variable is included, the coefficient on “VC and Company in Same State” becomes insignificant. I interpret this result as follows. A serial founder is generally more likely to receive financing from a VC firm that is geographically close to his previous company. If, however, the founder’s new company is located in a different location from that of his new company, then the proximity between the VC firm and the new company is irrelevant to the propensity for there being a repeated relationship.

Finally, I interact “Same State” with “VC Board Seat” to test whether the geographical distance between a founder’s companies is more important for a VC firm that is more involved in the founder’s previous company. As shown in Model 7.III, I find no such evidence.

F. Other Motivations

In this section I discuss other potential motivations that might explain why some serial founders are more likely to discontinue relationships. One such motivation is that the founder’s new company operates in a market where there are many VC firms. To explore this I study the unreported coefficients on the location coefficients in tables 5 and 6. Consistent with this motivation I find that repeated relationships are significantly less common when the founder’s new company is located in California

(which is the U.S. state with the largest concentration of VC firms). Since all regressions include state dummies, the California result does not explain the other above discussed results.

Another potential motivation for repeated relationships is that serial founders are informationally captured by their previous VC investors (Sharpe, 1990; Rajan, 1992). If VC firms that have invested in the founder's previous company have acquired private information about the founder's human capital, then other VC firms may be reluctant to finance a serial founder because of the fear of adverse selection. Adverse selection problems are likely to be higher when the founder is perceived to have low entrepreneurial talent. Consistent with this, I find in table 6 that the likelihood of having any repeated relationship is lower for a founder whose previous company had the most successful outcome, as measured by an Initial Public Offering, than for a founder whose previous company was acquired.²⁰ However, as evidence against this explanation I find that repeated relationships are also more likely for a founder with a merger than for a founder whose company failed or has yet to realize any outcome (which is the omitted category).

Table 6 also reports the coefficients on "Involvement Count," which measures the number of venture-backed companies that were started by the founder (excluding the current one). I find that founders with more numerous previous involvements are more likely to engage in repeated relationships.²¹

G. Summary of Results on the Cross-Section of Repeated Relationships

I find empirical support for Hypotheses 1 – 4. Hypothesis 4a, which states that industry specialization predicts relational VC financing, is supported only when considering repeated relationships with first-round investments in the founder's new company. Overall, the results are consistent with the theory that relational financing by VC firms of serial founders is driven by a tradeoff between the preservation of founder information and optimizing the outcome of VC-company matching.

²⁰ IPO and acquisition are the standard outcome variables used in the VC literature (see for example Gompers et al, 2007a). Clearly, some non-acquired private companies are likely to be successful stand-alone businesses and some acquired companies the result of unsuccessful "scrap" acquisitions. However, data limitations endemic to a study of private companies prohibit a finer division of these outcome variables.

²¹ The variables "Outcome IPO," "Outcome Merger," and "Involvement Count" are estimated but not reported in all regression models of table 5. None of the coefficients is significant.

The economic importance of information is considerable, which could be illustrated by a comparison of VC investors with the largest difference in involvement. As presented in table 4A, the probability of a repeated relationship is 26% for the 152 sample VC firms that have the strongest involvement (a private-partnership VC firm that holds a board seat, invests at an early stage, and is located in the same state as the company) and 4% for the 507 sample VC firms that have the weakest involvement (a non-private-partnership VC firm that does not hold a board seat, invests at a later stage, and is not located in the same state as the company). Interestingly, these magnitudes are quantitatively similar to the results on bank relationships found in Bharath et al (2007a). A bank with a relational tie with the company has a probability of 42% of providing a new loan to the company, as compared with 3% for a non-relational bank. Thus, the probability of relational financing is about the same for a non-relational bank that could provide a follow-up loan to a company as it is for a non-informed VC firm that could provide financing to a serial founder's new company.

When also considering the importance of other informational aspects and matching between a VC firm and the founder's new company, the difference in the probability of relational VC financing is further enhanced. The probability of a repeated relationship is 67% for the nine sample VC firms that have the strongest involvement (as defined in the above paragraph), that invested in a founder whose previous company is located in geographical proximity (the bottom quartile of sample distance), is in the same industry group (9-level), received first-round financing less than four years before his new company, and had less than seven VC firms. The corresponding probability is zero for the 51 sample VC firms that had the weakest involvement and invested in a founder whose previous company is located at a geographical distance (top quartile), is in a different industry group, received first-round financing more than three years before his new company, and had more than six VC firms.

VI. Empirical Results on VC Firm's Involvement in the New Company

The empirical validation of Hypotheses 1 – 3 shows that relational VC financing is likely to be motivated by the value of preserving and capitalizing on information about a founder. From this follows the empirical expectation that VC firms with more information should take a more active role in the

founder's new company, so they can best capitalize on the information. The final step in my empirical analysis is to test Hypotheses 5 and 6, which both make predictions about how repeated relationships affect VC involvement in a founder's new company. I study two different dimensions of a VC firm's involvement—the stage of the company at which the VC makes its first investment and whether an executive of the VC firm holds a board seat.

A. VC Investment Stage

Table 8 shows the results of a univariate comparison of VC involvement. Panel A compares the investment stage for VC firms that also invested in the founder's previous company ("Repeated VC firms") and other VC firms ("New VC firms"). I find differences of great magnitude. While 76% of all investments by repeated VC firms are provided at the company's first financing round, the same fraction for new VC firms is only 43%. Panel B compares the investment stage for repeated VC firms that hold a board seat in the previous company with repeated VC firms that do not hold a board seat in the previous company. Fully 94% of repeated VC firms with a previous board seat invest in the first financing round of the new company, as compared with 76% of repeated VC firms with no previous board seat. This pattern is also found in the regressions that are reported in table 9. Controlling for VC firm and company characteristics, regressions in Models 9.I – 9.VI validate the findings of the univariate comparisons.

<< *INSERT TABLE 8 ABOUT HERE* >>

<< *INSERT TABLE 9 ABOUT HERE* >>

B. Board Seat

Panels C and D report results of a univariate comparison of the fraction of VC firms that hold a board seat in the founder's new company. As shown in panel C, repeated VC firms are more likely than new VC firms to hold a board seat in the founder's new company. Panel D compares this fraction between repeated VC firms with a board seat in the founder's new company with other repeated VC firms. I find strong evidence of "board seat persistence" for repeated VC firms—a board seat in the new company is more than twice as common (70% versus 31%) for VC firms that also had a board seat in the previous company. The univariate results are verified in regressions that are reported in table 10.

Controlling for VC firm and company characteristics, board seats are more common for repeated VC firms and particularly for repeated VC firms with a board seat in the founder's previous company.

<< *INSERT TABLE 10 ABOUT HERE* >>

C. Summary of Results on VC Involvement in the New Company

The results reported in tables 8 – 10 provide support for Hypothesis 5, which states that a VC firm that has a repeated relationship should be more involved in the founder's new company as compared with other VC firms. Repeated VC firms invest earlier than other VC firms and are more likely to hold a board seat in the founder's new company. I also find empirical support for Hypothesis 6, which states that a VC firm that is more involved in a serial founder's previous company should be more involved in the founder's new company as compared with a VC firm that is less involved in the founder's previous company. Repeated VC firms that hold a board seat in the founder's previous company are found to invest earlier and be more likely to hold a board seat, as compared with repeated VC firms that do not hold a board seat.

Considered as a whole, the empirical validation of Hypotheses 5 and 6 adds further evidence to the thesis that the value of preserving and capitalizing on information is a major motivation explaining why VC firms engage in relational financing with serial founders.

VII. Concluding Discussion

The findings of this paper reveal that VC firms, despite being active investors targeting companies with severe information problems, frequently discontinue relationships with serial founders. I test and find supportive evidence for two motivations to explain why so many founders and VC firms choose not to engage in relational financing. The first motivation is that the VC firm's involvement in a founder's previous company was not very strong and thereby did not give the VC firm enough valuable proprietary information about the founder. An alternative interpretation of my empirical results pertaining to VC involvement is that the relationship ended because the founder did not have enough private information about the VC firm. The second motivation is related to the geographical and industry specialization of VC firms—a founder who moves to a new geographical area or industry is likely to

have a suboptimal match with his previous investors. My findings indicate that, even though information is a major reason behind repeated financing relationships, such ties may be uncommon in settings with high information costs because active and specialized investors need a good match with their borrowers.

While information preservation and matching are found to have strong predictive power with respect to repeated relationships, these two motivations are unlikely to be the sole reasons so many VC relationships are not continued. The relatively low pseudo R-squared (between 0.13 and 0.15) found in the empirical tests of repeated relationships show that other motivations are also important.

One such possible motivation is that a serial founder “moves up the ladder” by choosing new VC firms that are more reputable or experienced than the VC firms that invested in his previous company. This motivation has been empirically shown to be an important explanation why borrowers end relationships with banks (Radhakrishnan, Udell & Yerramilli, 2007) and why companies end relationships with underwriters (Krigman, Shaw & Womack, 2001). A serial founder may also end VC relationships because increased exposure in the marketplace has allowed him to expand his network and make contact with a large number of new VC investors. Indirect evidence for this motivation is found by Hsu (2007), who shows that a serial founder is more likely to raise financing from a VC firm with whom the founder has a personal connection. Another possibility is that relationships end because VC firms, many of which operate only one or two funds at a given time, do not have available capital when the founder seeks financing for his company.

Finally, there are possible behavioral reasons why serial founders choose not to receive financing from their previous VC investors. Interviewed executives at VC firms have explained to me that VC investments frequently lead to frictions or “bad blood” with founders (VC firms are sometimes referred to as “vulture capitalists”). Founders often feel strong emotional attachment to their ideas and products, and dislike the propensity on the part of VC firms to demand strong control rights in return for their capital. VC firms sometimes force a founder to step down as CEO (Hellman & Puri, 2002; Kaplan, Sensoy & Strömberg, 2009). Recent empirical evidence also suggests that, while VC firms appear to be patient investors during the initial years of a company’s operations, the failure rate after five years is higher for venture-backed companies than for non-venture-backed companies (Puri & Zarutskie, 2008).

References

- Bengtsson, Ola, Steven Kaplan, Frederic Martel, and Per Strömberg, 2005. "Investment Screening and Market Conditions: Evidence From Venture Capital." Working paper, Cornell University, University of Chicago and Swedish Institute for Financial Research.
- Bengtsson, Ola, 2007. "Repeated Relationships between Venture Capitalists and Entrepreneurs." Unpublished manuscript, Cornell University.
- Berger, Allen and Gregory Udell, 1995. "Relationship Lending and Lines of Credit in Small Firm Finance." *Journal of Business*, 68, 351-381.
- Bharath Sreedhar, Sandeep Dahiya, Anthony Saunders and Anand Srinivasan, 2007a. "'So What Do I Get : A Bank's View of Lending Relationships?'" *Journal of Financial Economics*, 85, 368-419.
- Bharath Sreedhar, Sandeep Dahiya, Anthony Saunders and Anand Srinivasan, 2007b. "Lending Relationships and Loan Contract Terms: Does Size Matter?" Working paper, University of Michigan, Georgetown University, New York University, and National University of Singapore.
- Black, Fischer, 1975. "Bank Funds Management in an Efficient Market." *Journal of Financial Economics*, 2, 323-339.
- Bottazi, Laura, DaRin, Marco and Thomas Hellmann, 2007, "Who Are the Active Investors? Evidence from Venture Capital", *Journal of Financial Economics*, forthcoming.
- Chemmanur, Thomas, Karthik Krishnan and Debarshi Nandy, 2008. "How does Venture Capital Financing Improve Efficiency in Private Firms? A Look beneath the Surface." Working paper, Boston College and York University.
- Cole, Rebel, 1998. "The Importance of Relationships to the Availability of Credit." *Journal of Banking and Finance*, 22, 959-977.
- Coval, Joshua, and Tobias Moskowitz, 2001. "The Geography of Investment: Information Trading and Asset Prices." *Journal of Political Economy*, 109, 811-841.
- Cumming, Douglas, 2008, "Contracts and Exits in Venture Capital Finance", *Review of Financial Studies*, 21, 1947-1982.
- Diamond, Douglas, 1984. "Financial Intermediation and Delegated Monitoring." *Review of Economic Studies*, 51, 393-414.
- Diamond, Douglas, 1991. "Monitoring and Reputation: The Choice between Bank Loans and Privately Placed Debt." *Journal of Political Economy*, 99, 689-721.
- Degryse, Hans, and Steven Ongena, 2005. "Distance, Lending Relationships, and Competition." *Journal of Finance*, 60, 231-266.
- Fama, Eugene, 1985. "What's Different about Banks?" *Journal of Monetary Economics*, 15, 29-39.
- Gompers, Paul; Anna Kovner, Josh Lerner and David Scharfstein, 2008a. "Performance Persistence in Entrepreneurship" Working paper, Harvard Business School.
- Gompers, Paul; Anna Kovner, Josh Lerner and David Scharfstein, 2008b. "Specialization and Success: Evidence from Venture Capital." *Journal of Financial Economics*, 87, 1-23.

- Gorman, Michael. and Sahlman, William, 1989. "What Do Venture Capitalists Do?" *Journal of Business Venturing*, 4, 231-248.
- Greenbaum, Stuart, and Thakor, Anjan, 1995. *Contemporary Financial Intermediation*. Dryden Press: New York.
- Gupta, Anil and Harry Sapienza, 1992. "Determinants of Venture Capital Firms' Preferences Regarding the Industry Diversity and Geographical Scope of their Investments." *Journal of Business Venturing*, 7, 347-362.
- Hellman, Thomas, 1998, "The Allocation of Control Rights in Venture Capital", *RAND Journal of Economics*, 29, 57-76.
- Hellmann, Thomas and Manju Puri, 2002. "Venture Capital and the Professionalization of Startups: 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.
- Hochberg, Yael, Alexander Ljungqvist and Yang Lu, 2008. "Networking as a Barrier to Entry and the Competitive Supply of Venture Capital." Working paper, Northwestern University and New York University.
- Hsu, David, 2007. "Experienced Entrepreneurial Founders, Organizational Capital, and Venture Capital Funding." *Research Policy*, 36, 722-741.
- Ivashina, Victoria and Anna Kovner, 2007. "The Private Equity Advantage: Leveraged Buyout Firms and Relationship Banking." Working paper, Harvard Business School.
- James, Christopher, 1987. "Some Evidence of the Uniqueness of Bank Loans." *Journal of Financial Economics*, 19, 217-235.
- Lummer, Scott, John McConnell, 1989. "Further Evidence on the Bank Lending Process and the Reaction of the Capital Markets to Bank Loan Agreements." *Journal of Financial Economics*, 25, 99-122.
- Kaplan, Steven, Berk Sensoy and Per Strömberg, 2009. "Should Investors Bet on the Jockey or the Horse? Evidence from the Evolution of Firms from Early Business Plans to Public Companies." *Journal of Finance*, 64, 75-115.
- Kaplan, Steven, and Per Strömberg, 2004. Characteristics, Contracts, and Actions: Evidence from Venture Capitalist Analyses." *Journal of Finance* 59, 2177-2210.
- Krigman, Laurie, Wayne Shaw and Kent Womack, 2001. "Why do Firms Switch Underwriters?" *Journal of Financial Economics*, 60, 245-284.
- Lerner, Joshua, 1995, "Venture Capitalists and the Oversight of Private Firms", *Journal of Finance* 50, 301-318.
- Norton, Edgar and Bernard Tenenbaum, 1993. "Specialization versus Diversification as a Venture Capital Investment Strategy." *Journal of Business Venturing*, 8, 431-442.
- Ongena Steven and David Smith, 2001. "The Duration of Bank Relationships." *Journal of Financial Economics*, 61, 449-475.

- Petersen, Mitchell and Raghuram Rajan, 1994. "The Benefits of Lending Relationships: Evidence from Small Business Data." *Journal of Finance*, 49, 3-37.
- Puri, Manju and Rebecca Zarutskie, 2008. "On the Lifecycle Dynamics of Venture-Capital and Non-Venture-Capital-Financed Firms." Working paper, Duke University.
- Radhakrishnan Gopalan, Gregory Udell and Vijay Yerramilli, 2008. "Why Do Firms Switch Banks." Working paper, Washington University and Indiana University.
- Rajan, Raghuram, 1992. "Insiders and Outsiders: The Choice between Informed and Arm's-Length Debt." *The Journal of Finance*, 47(4), 1367-1400.
- Sharpe, Steven, 1990. "Asymmetric Information, Bank Lending and Implicit Contracts: A Stylized Model of Customer Relationships." *The Journal of Finance*, 45, 1069-1087.
- Sorensen, Morten, 2007. "How Smart is Smart Money? A Two-Sided Matching Model of Venture Capital." *Journal of Finance*, 62, 2725-2762.
- Stuart, Toby and Olav Sorensen, 2001. "Syndication Networks and the Spatial Distribution of Venture Capital Investments." *American Journal of Sociology*, 106, 1546-1586.
- Wongsunwai, Wan, 2008. "Does Venture Capitalist Quality Affect Corporate Governance?" Working paper, Northwestern University.

Table 1 - Sample Overview

Sample is individuals who are listed in either CapitalIQ or VentureXpert as founder of a U.S. VC-backed company. I exclude any founder who is affiliated with a VC firm, either as a firm employee or as entrepreneur-in-residence. Serial founders are founders who have founded at least two VC-backed US companies that are included in the VentureXpert database. A company pair for a serial founder is defined as a pair of the founder's previous and new companies. Thus a founder of 3 companies has two company pairs, the first pair capturing the 1st and 2nd companies and the second pair capturing the 2nd and 3rd companies. I exclude company pairs that occur with more than 10 years apart. The industry segments are based on the VentureXpert classification with "Biotechnology" and "Medical/Health" labelled as Life Science, and "Computer Hardware", "Computer Software", "Internet Specific" and "Semiconductors/Other" labelled as "High-Tech" and "Other Products", "Industrial/Energy", "Consumer Related" and "Communications and Media" labelled as Other. The state refers to the location of the company's headquarters.

A. Sample Overview

Founders of VC-backed Companies in CapitalIQ or VentureXpert	9,385
whereof One-Time Founders (Founded Exactly One Company)	8,748
whereof Serial Founders (Founded Two or More Companies)	637
Company Pairs for Serial Founders	776
VC Involvements in Founder's Previous Company	3,790
whereof Still Active at Time of First Round of New Company	3,356
VC Involvements in Founder's New Company	3,540
Number of Unique Companies	1,224
Number of Unique VCs	1,608

B. Number of Company Pairs for Serial Founders

<u>Company Pairs</u>	<u>Individuals</u>		<u>Company Pairs</u>	
	<u>N</u>	<u>Fraction</u>	<u>N</u>	<u>Fraction</u>
2	517	81%	610	79%
3	88	14%	118	15%
4	21	3%	32	4%
5	7	1%	11	1%
6	3	0%	4	1%
7	1	0%	1	0%
Total	637	100%	776	100%

C. Tabulations by Industry and State for Serial Founders

	<u>Previous Company</u>	<u>New Company</u>
Life Science	63%	63%
High-Tech	19%	19%
Other	17%	18%
California	61%	58%
Massachusetts	14%	13%
Texas	4%	4%
Other US States	22%	25%

Table 2 - Summary Statistics on Company and VC Characteristics

See Table 1 for sample description. Company and VC characteristics data from VentureXpert. In "Company Pair Level" one observation is one company-founder pair (i.e. some companies are counted multiple times if having more than one serial founder, and some founders are counted multiple times if having founded more than 2 companies). Company Outcome (IPO/merger) and Number of VC Investors for previous involvement refers to outcome prior to the first round of the new company involvement. Early Stage is a dummy equal to 1 if company was at early stage at time of first VC round, and 0 otherwise. Years Between Companies is the difference between the years of the first VC round for the founder's previous and new company. In "VC Involvement Level" one observation is one VC that invested in a serial founder's previous and new company involvements respectively (i.e. some VCs are counted multiple times if involved in different companies). The experience variables Age and Number of Investments reflect the VC experience prior to the VC's involvement in the company. Active Investor is a dummy equal to 1 if the VC was an active investor at the new company involvement, and 0 otherwise.

	<u>Previous Company</u>					<u>New Company</u>				
	<u>N</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Min</u>	<u>Max</u>	<u>N</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Min</u>	<u>Max</u>
<u>A. Company Pair Level</u>										
Outcome Merger (Dummy)	776	0.23	0.42	0	1					
Outcome IPO (Dummy)	776	0.20	0.40	0	1					
Number of VC Rounds	776	4.18	2.47	1	16	776	3.55	2.21	1	15
Number of VC Investors	776	4.89	5.03	1	48	776	4.56	4.99	1	48
Number of First Round VC Investors	776	2.05	5.03	1	48	776	2.02	4.99	1	48
Early Stage at First Round (Dummy)	776	0.82	0.39	0	1	776	0.84	0.37	0	1
Same Industry (9 segments, Dummy)						776	0.42	0.49	0	1
Same Industry (3 segments, Dummy)						776	0.72	0.45	0	1
Same State (Dummy)						776	0.76	0.43	0	1
Same City (Dummy)						776	0.25	0.43	0	1
Distance in Kilometres						776	641	1,297	0	7,489
Years Between Companies						776	4.39	2.66	0	10
<u>B. VC Involvement Level</u>										
Private Partnership (Dummy)	3,790	0.65	0.48	0	1	3,540	0.67	0.47	0	1
Located in U.S. (Dummy)	3,790	0.93	0.26	0	1	3,540	0.92	0.27	0	1
Age (In Years)	3,790	10.22	9.35	0	41	3,540	11.24	10.20	0	43
Number of Investments Total	3,790	83	129	0	1,251	3,540	100	150	0	1,270
VC and Company in Same State (Dummy)	3,790	0.42	0.49	0	1	3,540	0.45	0.50	0	1
Round Number of First Investment	3,790	2.37	1.54	1	14	3,540	2.37	1.67	1	13
Invested in First Round (Dummy)	3,790	0.42	0.49	0	1	3,540	0.44	0.50	0	1
Invested in Early Stage (Dummy)	3,790	0.49	0.50	0	1	3,540	0.46	0.50	0	1
Board seat (Dummy)	3,790	0.12	0.33	0	1	3,540	0.26	0.44	0	1
Active Investor (Dummy)	3,790	0.89	0.32	0	1					

Table 3 - Summary Statistics Repeated Relationships

See Table 1 for sample description. In Panels A and B one observation is one VC that invested in a serial founder's previous company. These panels captures the probability that a particular previous VC has a repeated relationship with a serial founder. In Panel C one observation is one VC that invested in a serial founder's new company. This panel captures the probability that a particular new VC comes from a repeated relationship with a serial founder. In Panel D one observation is one company pair of a serial founder. This panel captures the probability that a serial founder has a repeated relationship with any previous VC. In Panel E, all founder data is aggregated to company-level and one observation is one company. This panel captures the probability that any VC that invested in the company has a repeated relationship with any founder.

A. VC Level (% of All Previous Involvement VCs)

<u>Previous Company</u>	<u>New Company</u>	<u>N</u>	<u>Fraction</u>
Any round	Any round	3,790	9.3%
Any round	First round	3,790	7.1%
First round	First round	1,588	10.8%

B. VC Level - Sample Conditional on Still Active VC (% of All Previous Involvement VCs)

<u>Previous Company</u>	<u>New Company</u>	<u>N</u>	<u>Fraction</u>
Any round	Any round	3,356	10.5%
Any round	First round	3,356	8.0%
First round	First round	1,443	11.9%

C. VC Level - (% of All New Involvement VCs)

<u>Previous Company</u>	<u>New Company</u>	<u>N</u>	<u>Fraction</u>
Any round	Any round	3,540	10.0%
Any round	First round	1,567	17.2%
First round	First round	1,567	10.9%

D. Company Pair Level - Fraction With Any Repeated VC (% of All Founders)

<u>Previous Company</u>	<u>New Company</u>	<u>N</u>	<u>Fraction</u>
Any round	Any round	776	33.0%
Any round	First round	776	27.2%
First round	First round	776	17.8%

E. Company Level - Fraction With Any Repeated VC (% of All Companies)

<u>Previous Company</u>	<u>New Company</u>	<u>N</u>	<u>Fraction</u>
Any round	Any round	691	37.0%
Any round	First round	691	30.5%
First round	First round	691	20.0%

Table 4 - Univariate Comparison of Repeated Relationships

See Table 1 for sample description. Panel A1 captures the probability that a particular previous VC has a repeated relationship with a serial founder in any round of the founder's new company. In Panel A1 one observation is one VC involvement in a serial founder's previous company (N=3,356). Panel A2 captures the probability that any previous VC has a repeated relationship with a serial founder in any round of the founder's new company. In Panel A2 one observation is one company pair (N=776). Panel B1 captures the probability that a particular previous VC has a repeated relationship with a serial founder in the first round of the founder's new company. In Panel B1 one observation is one VC involvement in a serial founder's previous company (N=3,356). Panel B2 captures the probability that any previous VC has a repeated relationship with a serial founder in the first round of the founder's new company. In Panel B2 one observation is one company pair (N=776). Sample for Max Involvement=Yes is private partnership VCs that hold a board seat, are located in the same state as the company and invested in an early stage. Sample for Max Involvement=No is non-private partnership VCs that do not hold a board seat, are located in a different state as the company and did not invest in an early stage. Short distance is when the distance between company and VC is in the lowest sample quartile. Statistical significance for Chi-squared test marked with * at 10%; ** at 5% and *** at 1%.

A1. Particular VC from Previous Company Invested in Any Round of New Company (VC Involvement Level)

	No		Yes		Yes - No	Chi2 Test
	Fraction	Obs.	Fraction	Obs.	Fraction	
<u>VC Involvement</u>						
VC has Board Seat	9.4%	(2,916)	18.0%	(440)	8.5%	***
VC Private Partnership	5.8%	(1,063)	12.7%	(2,293)	6.9%	***
VC and Company in Same State	7.8%	(1,927)	14.3%	(1,429)	6.5%	***
VC Invested in Early Stage	6.3%	(1,664)	14.8%	(1,692)	8.5%	***
Max Involvement	4.3%	(507)	25.7%	(152)	21.3%	***
Less than 4 Years Btw Companies	8.7%	(1,664)	12.4%	(1,692)	3.8%	***
Less than 7 VCs in Company	6.3%	(1,357)	13.4%	(1,999)	7.1%	***
Same Industry 3-level	9.6%	(970)	10.9%	(2,386)	1.4%	
Same State	7.0%	(759)	11.6%	(2,597)	4.6%	***
Short Distance, Same (9-lvl) Industry Max Involvement, Less than 7 VCs and 4 Years Btw Companies	0.0%	(51)	66.7%	(9)	66.7%	***

A2. Any VC from Previous Company Invested in Any Round of New Company (Company Pair Level)

	No		Yes		Yes - No	Chi2 Test
	Fraction	Obs.	Fraction	Obs.	Fraction	
Less than 4 Years Btw Companies	30.3%	(346)	35.1%	(430)	4.8%	
Less than 7 VCs in Company	50.4%	(141)	29.1%	(635)	-21.2%	***
Same Industry 3-level	30.9%	(217)	33.8%	(559)	2.9%	
Same State	21.6%	(190)	30.0%	(586)	8.5%	***
Outcome IPO (Dummy)	32.7%	(621)	34.2%	(155)	1.5%	
Outcome Merger (Dummy)	32.1%	(601)	36.0%	(175)	3.9%	

B1. Particular VC from Previous Company Invested in First Round of New Company (VC Involvement Level)

	<u>No</u>		<u>Yes</u>		<u>Yes - No</u>	<u>Chi2 Test</u>
	<u>Fraction</u>	<u>Obs.</u>	<u>Fraction</u>	<u>Obs.</u>	<u>Fraction</u>	
<u>VC Involvement</u>						
VC has Board Seat	6.9%	(2,916)	15.7%	(440)	8.8%	***
VC Private Partnership	4.0%	(1,063)	9.9%	(2,293)	6.0%	***
VC and Company in Same State	5.9%	(1,927)	10.9%	(1,429)	5.0%	***
VC Invested in Early Stage	4.0%	(1,664)	12.0%	(1,692)	8.0%	***
Max Involvement	3.4%	(507)	23.0%	(152)	19.7%	***
Less than 4 Years Btw Involvements	6.7%	(1,664)	9.4%	(1,692)	2.7%	***
Less than 7 VCs in Company	4.8%	(1,357)	10.3%	(1,999)	5.5%	***
Same Industry 3-level	6.7%	(970)	8.6%	(2,386)	1.9%	*
Same State	5.5%	(759)	8.8%	(2,597)	3.2%	***
Short Distance, Same (9-lvl) Industry Max Involvement, Less than 7 VCs and 4 Years Btw Companies	0.0%	(51)	66.7%	(9)	66.7%	***

B2. Any VC from Previous Company Invested in First Round of New Company (Company Pair Level)

	<u>No</u>		<u>Yes</u>		<u>Yes - No</u>	<u>Chi2 Test</u>
	<u>Fraction</u>	<u>Obs.</u>	<u>Fraction</u>	<u>Obs.</u>	<u>Fraction</u>	
Less than 4 Years Btw Companies	25.1%	(346)	28.8%	(430)	3.7%	
Less than 7 VCs in Company	39.0%	(141)	24.6%	(635)	14.4%	***
Same Industry 3-level	22.6%	(217)	29.0%	(559)	6.4%	*
Same State	18.4%	(190)	30.0%	(586)	11.6%	***
Outcome IPO (Dummy)	27.2%	(621)	27.1%	(155)	-0.1%	
Outcome Merger (Dummy)	27.3%	(601)	26.9%	(175)	-0.4%	

Table 5 - Repeated Relationships - VC Involvement Level

See Table 1 for sample description and Table 2 for variable description. One observation is one VC involvement in a serial founder's previous company. Sample is restricted to VCs that are active investor at the time of the first VC round of the founder's new company. In specifications III and VI, sample is also restricted to U.S. private partnership VCs. Specifications I-III are probit regression with the dependent variable equals 1 if the VC from the founder's previous company also is an investor in the same founder's new company, and 0 otherwise. Specifications IV-VI are probit regression with the dependent variable equals 1 if the VC from the founder's previous also is an investor in the first round of the same founder's new company, and 0 otherwise. Control variables reflect the previous company. Residuals are clustered by company. T-stats in parenthesis. Statistical significance marked with * at 10%; ** at 5% and *** at 1%.

	I	II	III	IV	V	VI
VC has Board Seat (Dummy)	0.046 [2.87]***	0.047 [2.87]***		0.049 [3.42]***	0.049 [3.41]***	
VC and Company in Same State (Dummy)	0.041 [3.22]***	0.042 [3.25]***	0.063 [3.72]***	0.032 [2.89]***	0.033 [2.96]***	0.05 [3.49]***
VC Invested in Early Stage (Dummy)	0.022 [1.87]*		0.04 [2.33]**	0.033 [3.21]***		0.057 [3.75]***
Round Number of First Investment		-0.007 [1.33]			-0.011 [2.45]**	
VC Private Partnership (Dummy)	0.027 [2.09]**	0.027 [2.11]**		0.026 [2.42]**	0.026 [2.45]**	
VC Located in U.S. (Dummy)	0.034 [1.51]	0.034 [1.51]		0.017 [0.85]	0.017 [0.87]	
VC Number of Investments Total (logged)	0.006 [1.57]	0.006 [1.59]	0.01 [2.12]**	0.002 [0.59]	0.002 [0.65]	0.006 [1.48]
Years Between Companies	-0.01 [3.36]***	-0.009 [3.13]***	-0.012 [2.81]***	-0.004 [1.66]*	-0.003 [1.32]	-0.006 [1.64]
Number of VCs in Company	-0.006 [3.30]***	-0.006 [3.19]***	-0.009 [2.98]***	-0.005 [2.77]***	-0.005 [2.60]***	-0.007 [2.57]**
Same Industry 3-level (Dummy)	0.015 [1.08]	0.014 [1.03]	0.02 [1.02]	0.014 [1.19]	0.013 [1.10]	0.015 [0.91]
Same State (Dummy)	0.044 [3.43]***	0.044 [3.47]***	0.065 [3.84]***	0.028 [2.76]***	0.029 [2.90]***	0.039 [2.65]***
Dependent Variable	New Company Any Round			New Company First Round		
Unconditional Mean of Dep Var.	10.6%	10.6%	13.1%	8.1%	8.1%	10.3%
Observations	3,356	3,356	2,177	3,356	3,356	2,177
PseudoR2	0.14	0.14	0.14	0.15	0.14	0.15
Year, Industry and State Controls	Yes	Yes	Yes	Yes	Yes	Yes
Outcome and Involvement Count Controls	Yes	Yes	Yes	Yes	Yes	Yes
Sample	Full	Full	US PP	Full	Full	US PP

Table 8 - Univariate Comparison of VC Stage of Investment and VC Board Seat in New Company

See Table 1 for sample description. One observation is one VC involvement in serial founder's new company. Panel A tests whether a repeated VC vs. a new VC invests earlier in a founder's new company. Panel B tests whether a repeated VC with a board seat in the founder's previous company vs. a repeated VC without a board seat in the founder's previous company invest earlier in a founder's new company. Panel C tests whether a repeated VC vs. new VCs is more likely to have a board seat in the founder's new company. Panel D tests whether a repeated VC with a board seat in the founder's previous company vs. a repeated VC without a board seat in the founder's previous company is more likely to have a board seat in the founder's new company. Statistical significance for Chi-squared (Chi2) test and Kruska-Wallis test (K-W) marked with * at 10%; ** at 5% and *** at 1%.

A. Stage of Investment - Repeated vs New VC (% of VCs)

	Repeated VC		New VC		Yes - No	Chi2/K-W Test
	Fraction	Obs.	Fraction	Obs.	Fraction	Significance
Round Number of First Investment	1.41	(354)	2.47	(3,186)	-1.06	***
Invested in First Round	76.0%	(354)	42.7%	(3,186)	33.2%	***
Invested in Early Stage	79.7%	(354)	40.3%	(3,186)	39.3%	***

B. Stage of Investment - Repeated VC with Board Seat vs Repeated VC without Board Seat (% of VCs)

	Previous Company Board Seat		Previous Company No Board Seat		Yes - No	Chi2/K-W Test
	Fraction	Obs.	Fraction	Obs.	Fraction	Significance
Round Number of First Investment	1.16	(79)	1.48	(275)	-0.32	
Invested in First Round	93.7%	(79)	75.6%	(275)	18.0%	***
Invested in Early Stage	81.0%	(79)	74.5%	(275)	6.5%	

C. Board Seat in New Company - Repeated vs New VC (% of VCs)

	Same VC		New VC		Yes - No	Chi2/K-W Test
	Fraction	Obs.	Fraction	Obs.	Fraction	Significance
Board Seat and VC in Any Round	39.5%	(354)	24.4%	(3,186)	15.2%	***
Board Seat and VC in First Round	43.3%	(282)	36.0%	(1,285)	7.3%	*

D. Board Seat in New Company - Repeated VC with Board Seat vs Repeated VC without Board Seat (% of VCs)

	Previous Company Board Seat		Previous Company No Board Seat		Yes - No	Chi2/K-W Test
	Fraction	Obs.	Fraction	Obs.	Fraction	Significance
Board Seat and VC in Any Round	69.6%	(79)	30.9%	(275)	38.7%	***
Board Seat and VC in First Round	67.6%	(74)	34.6%	(208)	33.0%	***

Table 9 - VC Stage of Investment in New Company

See Table 1 for sample description and Table 2 for variable description. One observation is one VC involvement in a serial founder's new company. In Specifications III and VI, the sample is restricted to VCs that also invested in the founder's previous company. Control variables reflect the founder's new company. Specifications I-III are OLS regressions where the dependent variable is the round number of the VC's first investment in the new company. Specifications IV-VI are probit regressions with the dependent variable equals 1 if the VC invested in the first round of the founder's new company, and 0 otherwise. Residuals are clustered by company. T-stats in parenthesis. Statistical significance marked with * at 10%; ** at 5% and *** at 1%.

	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>
Same Industry 3-level (Dummy)		-0.182 [1.44]	-0.237 [1.35]		0.057 [1.74]*	0.193 [2.83]***
Same State (Dummy)		-0.32 [1.81]*	-0.207 [0.70]		0.046 [1.24]	-0.028 [0.38]
VC Located in U.S. (Dummy)	-0.153 [1.17]	-0.14 [1.08]	0.2 [0.65]	0.014 [0.32]	0.012 [0.27]	0.009 [0.05]
VC and Company in Same State (Dummy)	-0.353 [5.03]***	-0.34 [4.91]***	-0.074 [0.61]	0.141 [6.10]***	0.14 [5.99]***	0.003 [0.06]
VC Private Partnership (Dummy)	-0.527 [7.70]***	-0.522 [7.68]***	-0.195 [1.14]	0.171 [7.81]***	0.17 [7.75]***	0.117 [1.72]*
VC Number of Investments Total (logged)	-0.097 [4.05]***	-0.095 [4.00]***	0.104 [1.91]*	0.023 [3.61]***	0.023 [3.54]***	-0.094 [3.95]***
Years Between Companies	-0.057 [2.16]**	-0.048 [1.96]*	-0.05 [2.45]**	0.012 [2.03]**	0.01 [1.82]*	0.038 [3.27]***
Repeated VC	-0.781 [10.08]***	-0.75 [9.70]***		0.349 [9.72]***	0.346 [9.66]***	
VC Board Seat in Previous Company			-0.402 [3.40]***			0.224 [4.12]***
Constant	2.561 [5.49]***	3.088 [6.17]***	0.988 [1.71]*			
Dependent Variable	Round Number of VC First Investment			VC Invested in First Round		
Unconditional Mean of Dep Var.	2.37	2.37	1.41	44.3%	44.3%	79.7%
Observations	3540	3540	354	3540	3540	354
R2 / PseudoR2	0.14	0.15	0.19	0.12	0.12	0.26
Year, Industry and State Controls	Yes	Yes	Yes	Yes	Yes	Yes
Subsample	All	All	Repeated	All	All	Repeated

Table 10 - VC Board Seat in New Company

See Table 1 for sample description and Table 2 for variable description.. One observation is one VC involvement in a serial founder's new company. In Specifications I and II, the sample includes all VCs that invested in the first round of the founder's new company. In Specification III, the sample includes all VCs that invested in the first round of the founder's new company and also invested in the founder's previous company. In Specifications IV and V, the sample is restricted to VCs that invested in the first round of the founder's new company. In Specification VI, the sample is restricted to VCs that invested in the first round of the founder's new company and also invested in the founder's previous company. Control variables reflect the founder's new company. Probit regressions with the dependent variable equals 1 if the VC has a board seat in the founder's new company, and 0 otherwise. Control variables reflect the founder's new company. Residuals are clustered by company. T-stats in parenthesis. Statistical significance marked with * at 10%; ** at 5% and *** at 1%.

	I	II	III	IV	V	VI
Same Industry 3-level (Dummy)		0.025 [1.24]	-0.086 [0.87]		0.022 [0.59]	-0.203 [1.69]*
Same State (Dummy)		-0.011 [0.48]	-0.113 [1.27]		-0.065 [1.64]	-0.113 [1.01]
VC Located in U.S. (Dummy)	0.12 [3.61]***	0.121 [3.65]***	0.278 [1.41]	0.213 [3.44]***	0.214 [3.49]***	0.489 [3.49]***
VC and Company in Same State (Dummy)	0.076 [4.00]***	0.076 [4.04]***	-0.011 [0.13]	0.058 [1.74]*	0.061 [1.83]*	-0.05 [0.51]
VC Private Partnership (Dummy)	0.213 [11.78]***	0.213 [11.78]***	0.348 [3.70]***	0.285 [8.44]***	0.287 [8.54]***	0.447 [3.72]***
VC Number of Investments Total (logged)	0.06 [10.81]***	0.06 [10.77]***	0.03 [0.88]	0.075 [7.18]***	0.076 [7.19]***	0.032 [0.75]
Years Between Companies	0.004 [1.21]	0.004 [1.21]	0.013 [0.82]	0.005 [0.76]	0.006 [0.90]	-0.01 [0.53]
Repeated VC	0.102 [3.62]***	0.102 [3.64]***		0.088 [2.20]**	0.093 [2.32]**	
VC Board Seat in Previous Company			0.435 [4.85]***			0.363 [3.50]***

Dependent Variable	VC has Board Seat In New Company					
	Unconditional Mean of Dep Var.	25.9%	25.9%	39.5%	37.3%	37.3%
Observations	3540	3540	3540	354	354	282
PseudoR2	0.15	0.15	0.16	0.15	0.14	0.14
Year, Industry and State Controls	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All VC Involvements			First Round VC Involvements		
	All	All	Repeated	All	All	Repeated

Figures 1 and 2 - Overview of Sample Companies by Year

See Table 1 for sample description. One observation is one company pair of a serial founder. In Figure 1, the sample is split by year of a company's first VC investment round. In Figure 2, the sample is split by the difference in years of first VC investment round between founders' previous and new companies.

Figure 1 - Sample By Year of First VC Round of Founder's Companies

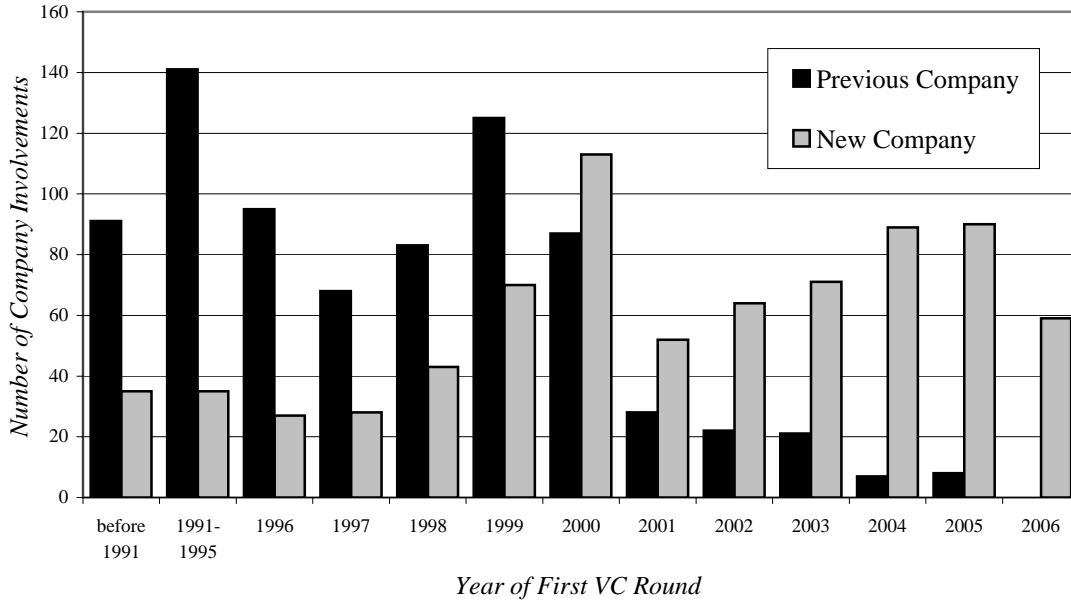


Figure 2 - Sample By Year Difference between First VC Round of Founder's Previous and New Companies

