More than Money: Venture Capitalists on Boards

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We explore patterns of board structure and function in the venture capital industry, identifying factors that influence whether venture capitalists receive a board seat and whether they take action to help portfolio companies in which they invest. In a comprehensive sample of US-based and non-US-based companies, we find that a venture capital firm's prior relationship with the founder, lead investor status, track record, network size, and geographical proximity to the portfolio company are positively correlated with its likelihood of taking a board seat in an investment round. When venture capital investors serve on the board, portfolio companies tend to recruit managers and board members from these investors' network and are more likely to exit via relationship-based acquisitions. These patterns are particularly strong for successful and well-connected venture capitalists on the board. (*JEL* G24, G30, G34)

1. Introduction

The role of venture capital directors in private companies has long been viewed as one factor important to the success of the firms in which they invest (Gompers et al. 2018). Most prior research on boards of directors have focused on public companies for which directors are viewed as serving more of an oversight role (Adams et al. 2010). Directors are involved with hiring and compensating senior managers (Hermalin and Weisbach 1988; Hermalin 2005), disciplining management in the face of poor performance (Weisbach 1988; Yermack 1996), and helping to evaluate and select projects (Dominguez-Martinez et al. 2008). This paper seeks to

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We thank two anonymous referees, Lauren Cohen, Raymond Fisman (the editor), Samuel Hanson, Vladimir Mukharlyamov, Matthew Rhodes-Kropf, and seminar participants at Brandeis University and Harvard Business School for helpful comments. Support for this research was provided by the Division of Research at the Harvard Business School. P.A.G. has invested in and provided consulting to venture capital firms.

The Journal of Law, Economics, and Organization, Vol. 0, No. 0
doi:10.1093/jleo/ewz010

identify important factors influencing board structure and governance in private venture capital-backed companies. Our results show important differences between the role of boards of directors in these private firms when they are compared with public company boards. Our results indicate that venture capital-backed boards are small and independent. On average, boards have only one insider. As boards grow, they become more independent by adding additional venture capital investors and additional outside directors. The number of insiders does not change from round to round. We also show that venture capital firms engage in activities that could potentially be valuable to the companies in which they invest. Venture capitalists recruit managers and outside directors from their network and serve as a bridge for acquisitions by former portfolio companies. These results are more frequent when the venture capital firm is represented on the board of directors.

Venture capitalists invest in young startup companies in hopes of building a successful enterprise that they can exit at higher valuations once the company has built its business. Prior research has demonstrated that venture capital returns are highly persistent at both the firm (Kaplan and Schoar 2005) and individual levels (Gompers et al. 2010). Significant debate has centered on whether this persistence in returns is driven by superior selection or actions taken by the venture capitalist that enhance firm value. Evidence to date has been mixed.[1] Our goal of this study is to explore whether we can identify specific actions taken by venture capitalists through their board service to potentially help their underlying portfolio companies. Our empirical analysis is two-fold. First, we examine factors that determine the likelihood that a venture capitalist receives a board seat in a company that they finance. Second, we explore the actions that venture capitalists take when they join the board of portfolio companies.

Boards of directors monitor and give strategic advice to companies that they govern (Adams et al. 2010; Schwartz-Ziv and Weisbach 2013).[2] They have the power to hire, fire, compensate management teams, serve as monitors and advisors, and help resolve conflicts of interest among decision makers and various constituents. In contrast to the large body of work on boards of directors of publicly traded companies, little work has been done on the boards of directors of privately held companies, largely due to data limitation. Utilizing a large sample of domestic and international venture capital deals, this paper aims to contribute in four ways: (1) examine the composition of boards of directors of privately held

1. For example, Sorensen (2007) estimates econometrically that the majority of value creation comes from selection, while Gompers et al. (2010) points to top tier firms' greater access to successful serial entrepreneurs who generate higher returns and Gompers et al. (2016) suggests that post-investment actions taken by venture capitalists impact deal success.

2. See Hermalin and Weisbach (2003) and Adams et al. (2010) for a comprehensive review of the literature on boards of directors.

venture capital-backed companies, (2) study the determinants of board membership for venture capital investors, (3) provide evidence that, as board members, venture capitalists recruit managers and outsider board members from their network for the portfolio companies that they monitor, and (4) show that relationship-based acquisitions are more likely to occur through the networks of venture capital investors than through the networks of non-board venture capital investors. Since venture capitalists are often seen as active investors who can take board seats at the portfolio companies in which they invest and play roles over and beyond those of traditional financial intermediaries, examining boards of directors of venture capital-backed companies provides a valuable venue for understanding the composition of boards of directors of privately held companies as well as the specific actions of venture capitalists as board members and investors.

We first provide a comprehensive view on how boards are structured at venture capital-backed private companies and how this composition changes as these boards grow. Due to lack of data, little work has been done to date on the composition of boards of directors of privately held venture capital-backed companies. Lerner (1995) examines the boards of 271 venture capital-backed companies in the biotechnology industry in the 1980s. Baker and Gompers (2003) study the size and composition of venture capital-backed companies at the time of their initial public offering. We add to this limited area of literature by examining the board composition of over 20,000 domestic and international venture capital-backed companies from 1980 to 2012. These companies span seven industries. To our knowledge, our paper is the first study to use such a comprehensive data set to conduct a careful examination of the boards of venture capital-backed private companies. This analysis allows us to better understand the structure and evolution of boards of venture capital-backed private companies.

Secondly, we shed light on the determinants of board membership in venture capital investment. We provide detailed discussion of how board structure varies across round, status as lead investor, industry, and geography. Our comprehensive data set allows us to explore factors such as venture capital firm quality, venture capital firm network size, investment syndicate size, geographical distance, and individual-level connection between the venture capital firm and the portfolio company, while controlling for portfolio company industry, investment stage, and investment year.[3]

Next, we examine whether there is a relationship between having a board seat and specific actions the venture capitalists take, which are

3. To our knowledge, Lerner (1995) is the only study that performs a similar analysis on the venture capital industry. The study is conducted on a small sample of venture capital-backed companies in a single industry in the 1980s and examines distance to the firm as a determinant of the board membership of venture capitalists.

plausibly associated with adding value. We examine strategic recruiting decisions that venture capitalists lead. Gorman and Sahlman (1989) survey 49 venture capitalists and conclude that management and independent board member recruiting is one of the most important services that venture capitalists say that they perform for their portfolio companies. Existing work on this topic, however, generally uses small data sets with narrow focuses, partly due to data limitations. Hellmann and Puri (2002) study 170 high-technology companies in Silicon Valley and find that venture capital plays a role in the hiring of a marketing executive. Bottazzi et al. (2008) survey a small sample of European-based venture capital firms for the period of 1998–2001 and find that experienced and independent venture capital firms state that they are active in recruiting managers for their portfolio companies. These self-reported surveys, however, do not allow the study to identify the prevalence of actual hires and whether or not well-connected venture capitalists use their network to draw these new hires. With a large, comprehensive sample of global venture capital firms and deals, our paper empirically explores the role that venture capitalist board members play in manager and outsider board member recruitment at the portfolio companies in which they invest. Specifically, we show that venture capitalist board members recruit managers and directors from their networks. Our approach allows us to link each hire to a specific venture capitalist's "people network" and thus clearly identify the hiring channel. This result is novel because these venture capitalists not only serve as highly skilled human resource consultants but also bring in highly qualified people from their network to work at their new portfolio companies. Knowing a potential employee or board member through a prior relationship in a startup would likely provide the venture capitalists with greater insights on their ability to add value for a particular company as well as provide them with greater potential to persuade the candidate to join the portfolio company.

Lastly, we investigate whether venture capitalists on the board are associated with relationship-based acquisitions. For each portfolio company in our sample that exited via an acquisition, we match the name of the acquirer with other portfolio companies in our sample. Once we find a match, we check whether the acquirer was funded by the same venture capital firm that funded the target. If the two share a common investor, then we call this deal a relationship-based acquisition. Work by Gompers and Xuan (2009) suggests that these relationship-based acquisitions are valuable. They find that acquisition announcement returns are more positive for acquisitions in which both the target and the acquirer were financed by the same venture capital firm. Thus, their work suggests that the ability to help portfolio companies get acquired at attractive valuations through their network of prior companies is an important source of value to founders and other shareholders. By providing evidence of these venture capital-led actions, our paper contributes to the literature on venture capitalists' ability to add value beyond investment target selection.

Our paper provides a rich description of the evolution of boards across financing rounds and within various industries. We find that venture capital-backed boards of directors are small and are mostly composed of venture capitalists and independent outsiders. The median number of board members is 5. As financing rounds progress, board size increases. As board size grows, the number of venture capitalists and independent outsider board members increases, while the number of inside board members remains small. Next, we find that lead investor status, prior investor–founder relationship, geographical proximity, the venture capital firm's track record, and the size of the venture capital firm's network of outsider board members and managers are all positively correlated with board membership. On average, venture capitalists receive a board seat 43.9% of the time. Being a lead investor in the investment round increases the venture capital firm's probability of board membership to 61.5% while non-lead investors serve on the board only 35% of the time. The probability of receiving a board seat is higher in earlier rounds for both lead and non-lead investors. Finally, independent venture capital investors receive board seats far more often than corporate venture capitalists in young startups.

In regression analysis, we show that having a prior relationship with founders also increases the venture capital firm's probability of board membership by almost 10%. In addition, having a large network of managers and outsider board members from which to recruit is as important as having a successful track record.[4] All of these factors are plausibly related to the value that venture capitalists can provide to portfolio companies and, hence, are positively related to getting a board seat.

Analogous to the results from Lerner (1994), we find that venture capital firms tend to syndicate with other venture capital firms that have similar skill levels. The venture capital firm syndication choice prevents us from discerning the performance effect that venture capital firm board members' skill level has on investment success because, in terms of skill level, each venture capital firm in the syndicate, whether on the board or not, is virtually identical. We do know, however, based upon the work of Gompers et al. (2010) and Kaplan and Schoar (2005) that high status and high past performance venture capitalists have investment outcomes that are, on average, better than other venture capitalists. Alternatively, we focus on activities that venture capital firm board members perform for their portfolio companies. In particular, we examine whether specific activities are primarily undertaken when the venture capitalist actually serves on the board. We find that, compared with the average venture capital firm investor, successful and well-connected venture capital firm board members recruit significantly more managers and board members from their network than their less successful and less connected

4. Prior work such as Hochberg et al. (2007) suggests that a venture capitalist's network plays an important role in investment performance.

counterparts. In addition, having this group of venture capitalists on the board is associated with a higher probability that the portfolio company will be acquired by a company that the same venture capital firms had invested in.

For related outsider board member recruiting, the ordinary least squares (OLS) results show that this activity is not mediated by board membership. Our OLS regressions suffer from selection bias, which likely mitigates the effect of board membership on outside recruiting. In some sense, a venture capitalist may be more likely to appoint an outside director from her network when she chooses not to join the board. Monitoring is an important aspect of board membership so she might hire a related outsider board member to monitor the company for her in her absence.

Lastly, we find that these recruiting and relationship-based acquisitions are mostly performed by successful and well-connected venture capitalists on the board. Tying this finding to our results for determinants of board membership, we see indirect evidence that these activities are valuable for portfolio companies. We show that successful and well-connected venture capitalists are more likely to obtain board membership upon investment and that these venture capitalists are the most active investors in terms of relationship-based recruiting and acquisitions.

Overall, we interpret our results as suggestive evidence that successful and well-connected venture capitalists bring value to the companies in which they invest and serve as directors. This interpretation, however, comes with caveats. While we demonstrate that venture capitalists who serve on the boards are likely to get involved in portfolio companies and use their connections through their network for recruiting and exiting, the paper does not provide evidence on returns to the venture capitalists or performance of the portfolio companies conditional on whether venture capitalists serve on the boards or not. Thus, our interpretation is based on the assumption that actions such as related recruiting and related acquisition exits are valuable. However, it is possible that these actions are not value-creating. As Ewens et al. (2018) argue, venture capital contract terms and board seats may come from venture capital bargaining power being high at particular points in time. In our setting, for example, the use of the venture capital network could just be the path of least resistance that may end up with related hiring and board appointments that are not the best choices for the positions. Another possibility is that venture capital investors with strong bargaining power may make board membership a condition of their investment and, through their board position, hire recruits from their network with nepotistic motivations, which could be value-destroying. Similarly, venture capitalists may prefer to identify acquisition buyers and targets within their network, and being on the board gives them power to influence the outcome, which may not necessarily be the best option for the portfolio firms. Hence, without relating board membership and various services that venture capital investors perform (e.g., hiring and related acquisitions) to outcome variables (e.g., investment returns or portfolio company exit values), our paper does not provide definitive evidence, but instead, it provides suggestive evidence that venture capital investors can potentially add value via these channels. As our results are mainly driven by successful and well-connected venture capitalists, the fact that venture capital firms with high past performance tend to continue to perform well (Kaplan and Schoar 2005) suggests that the observed correlations in our paper could plausibly be associated with value creation and, hence, more future successes.

The rest of the paper is organized as follows. Section 2 discusses the data that we use to conduct our analysis. Section 3 presents the paper's results on the board size and composition of privately held venture capital-backed companies and on the determinants of board membership in venture capital investing. Section 4 presents results on board membership, key personnel recruiting, and relationship-based acquisitions. Section 5 concludes.

2. Data

Our primary data on boards of directors come from VentureSource which contains information on venture capital deals from 1980 to 2012. From this data, we are able to identify which venture capital firm invested in each portfolio company and identify which deals gave the venture capital firm a board seat at the portfolio company. The VentureSource data also contain information on managers and board members who work at each portfolio company.

To construct the sample, we first identify which board members are associated with each venture capital firm's network at each point in time. In particular, we map each relationship that all individuals have with all venture capital firms, either through prior status as a founder of firm in which the venture capitalist invested, as a manager of such a firm, or as a board member. This feature allows us to track the size of each venture capital firm's network over time. To ensure comparability over time, we normalize each venture capital firm's network of prior managers (board members) by the number of possible connections that a venture capital (VC) firm could have at each point in time. An individual is included in a venture capital firm's network when he or she has worked in a prior portfolio company in which the venture capital firm invested. With the ability to construct each individual's career history within the universe of venture capital-backed startups, we can identify a founder, manager, or board member at a portfolio company as a person who has a prior relationship with the investing venture capital firm or not. The size of a venture capitalist's "people network" is an important component of their reputation and, plausibly, their ability to add value. To our knowledge, we are the first to construct this network variable and show that it is important for recruiting and for acquisition of portfolio company.

The VentureSource data also provide the address of the venture capital firm's office. We then match this information to information on the addresses of the portfolio companies in the VentureSource data. After assigning latitude and longitude to each address, we are able to calculate the distance between the investing venture capital firm and every portfolio company in which it has invested. This distance variable is then used as one of the determinants of the probability of a venture capital firm obtaining a board seat at the portfolio company that it invests in.

Our final sample contains 26,402 portfolio companies and 81,780 individual investment deals.[5] We exclude companies with no information on its board composition and companies for which we cannot identify at least one founder. Due to data quality, we exclude investments made prior to 1980. Table 1 presents the summary statistics of our sample at the deal level. From the number of unique portfolio companies and deals, we can infer that, on average, each portfolio company receives funding from approximately three to four unique venture capital firms. These portfolio companies span seven industries, with the majority being in information technology, healthcare, business and financial services, and consumer services. There are relatively fewer portfolio companies in consumer goods, energy and utilities, and industrial goods and materials. About a quarter of the investments were made outside of the United States. In addition to round number, we classify each deal into one of four investment stages: startup, product development, generating revenue, and profitable. Most deals occurred when the portfolio company was in the product development or revenue-generating stage. Perhaps somewhat surprising, the majority of venture capital firms do not obtain a board seat when they make an investment. On average, a venture capital firm leads 33.45% of its investments and obtains a board seat in 43.89% of those deals. These two numbers highlight the fact that lead investors do not always obtain a board seat.

A novel aspect of this paper is the collection of the network variables that we use. The VentureSource data contain detailed senior level employee information for each portfolio company which allows us to construct these variables. As a control, we calculate the venture capital firm's network size at the time of each deal. *Network Size* is defined as the normalized number of managers and outsider board members that are connected to the venture capital firm at the time they make an investment.[6] A venture capital firm becomes connected to individuals when it invests in a portfolio company. Once it makes the investment, we assume that everyone who works for that company belongs to the venture capital

5. One deal is a unique venture capital firm and portfolio company pair. If a venture capital firm makes multiple rounds of investment in a portfolio company, we only keep the first round of investment made by the venture capital firm for our deal-level analyses.

6. In our tests, we use *Large Network* so that we could interpret the results more easily. Results are qualitatively similar when we use *Network Size*.

Table 1. Descriptive Statistics

Total deals	81,780	
	Count	Percent
Round number		
1	37,600	45.98
2	19,798	24.21
3	11,175	13.66
4+	13,207	16.15
Stage		
Startup	7153	8.75
Product development	27,842	34.04
Generating revenue	42,445	51.90
Profitable	4340	5.31
Industry		
Business and financial services	11,431	13.98
Consumer goods	734	0.90
Consumer services	7884	9.64
Energy and utilities	1384	1.69
Healthcare	19,936	24.38
Industrial goods and materials	1861	2.28
Information technology	38,550	47.14
Geography		
United States	60,608	74.11
East Coast	9962	12.18
West Coast	27,634	33.79
Other United States	23,012	28.14
Non-United States	21,172	25.89
Europe	15,830	19.36
Asia	2155	2.64
Other non-United States	3187	3.90
Board membership and services		
Deals that yielded a board seat	35,890	43.89
Deals where the VC is the lead investor	27,354	33.45
Deals with at least one related manager	5734	7.01
Deals with at least one related outsider board member	7880	9.64
Deals that exited via a related M&A	609	0.74
Average number of related managers	0.09	N/A
Average number of related outsider board member	0.11	N/A

This table summarizes the data set at the deal level. One deal is a unique pair of venture capital firm and portfolio company. A related manager is a non-founder manager who is recruited by the investing VC firm. A related outsider board member is an outsider board member who is recruited by the investing VC firm. A related M&A is an M&A event where the acquirer also received funding form the investing VC firm's portfolio.

firm's network. With connections defined this way, we can construct relationship-based outcome variables. *Number of Related Managers* is a deal-level outcome variable. It is the number of non-founder managers who belong to the venture capital firm's network prior to the deal getting funded and who started working for the portfolio after the venture capital firm had made its investment.[7] With these criteria, we assume that these

7. We use the natural log of this measure in our tests.

managers were recruited by the venture capital firm. This assumption allows us to measure the venture capital firm's recruiting activity via its network, that is, related hires. *Number of Related Outsider Board Members* is defined similarly, but applied to outsider board members. Finally, we define *Related M&A* as a dummy variable that equals 1 when the portfolio company is acquired by another company in which the venture capital firm invested in the past. We assume that the venture capital firm facilitates these deals via its connections and so we can observe another form of activity that venture capital firms engage in.

Venture capital firms recruit outsider managers from their network for 7.01% of their portfolio companies and outsider board members from their network for 9.64% of their portfolio companies.[8] Counting the number of related hires in all deals, venture capital firms recruit an average of 0.09 outsider managers and 0.11 outsider board members per portfolio company. These average numbers underestimate the actual number of outsider managers and board members that venture capital firms recruit into their portfolio companies because, as stated earlier, we use a strict and narrow definition of related employees by restricting relatedness to past employment histories at a venture capital firm's previous portfolio companies.[9] A venture capital firm's network likely spans beyond first degree connections between the venture capital firm and its portfolio companies. At the individual level, the venture capitalist may hire someone from his or her school network or professional connections made during his or her previous jobs. Furthermore, these numbers do not include employees who do not belong to the venture capital firm's network but are nonetheless found and hired into the portfolio companies by the venture capital firm.

Likewise, the rate of related acquisition in this sample is small. Only 0.74% of all deals exited through a related acquisition. Compared with all deals that exited via acquisition, related acquisitions make up 2.27% of this group. Again, this number should be treated as a lower bound because our definition of relationship is very narrow. In reality, an acquiring firm can be related to the venture capitalist in other ways, for example, via the venture capitalist's school connection with the company's CEO.

3. Board Composition and Membership Statistics

In this section, we begin by providing descriptive statistics on portfolio companies' board structure and venture capital investors' probability of getting board membership. These statistics aim to paint a picture of what the boards of private VC-backed companies look like and shed light on

8. Outsider managers are defined as non-founder individuals who hold the title of CEO, CFO, COO, CIO, CSO, CTO, Controller, Director, Manager, Managing Director, President, Principal, Vice President, or any variation of these titles, for example, Senior Vice President. Outsider board members are clearly identified as such in the data set.

9. Detailed definitions of related manager and related board member, as well as of all other variables used in the paper, are provided in Appendix A.

which investors get on the board and when. We close out the section by exploring determinants of board membership in a regression setting. Despite substantial variation in the data, the statistics presented in this section are best framed by the following two examples drawn from our data set.

The first example highlights a typical board arrangement of a young startup company. In the year 2000, a wireless infrastructure company in Illinois received seed funding from two venture capital firms. Venture capital firm A acted as the lead investor and received board membership from the investment, while the syndicate partner did not. The resulting board consisted of three members: a representative from venture capital firm A, an outside board member who, at the time, held a senior position at a public electronics manufacturing company, and the president and CEO who founded the startup. Here, we see a young startup company with a small board. The lead venture capital investor normally obtains a board seat when he or she invests in this type of company while a non-lead investor typically does not get a board seat.

The second example focuses on a more mature venture capital-backed company. In 2007, a profitable alcoholic beverage distribution company received funding from one venture capital investor. This round counts as the company's fourth round of financing. That venture capital firm led the investment round but did not get a board seat. The current board of the company comprised three venture capital investors, two outside board members, and the company's founder and CEO. Each venture capital investor on the board led previous investment rounds. The first outside board member was a venture capitalist who did not invest in the company, and the second outside board member was a marketing executive, who ran his own marketing advisory firm. This second example highlights a few facts. First, the board of a venture capital-backed company grows as it receives more financing rounds. Second, the board's growth mainly comes from the growing number of outside board members and venture capital investors. Lastly, it is typical that a lead investor in later rounds of investment does not get a board seat.

3.1 Board Size and Composition

Dow Jones VentureSource identifies board members by the individual's employment title. Board members in our data are classified into five categories: individual investor board members, institutional investor board members, board observers, inside board members, and outsider board members. Individual investors are non-institutional investors such as angels. Institutional investor board members are primarily venture capitalists who invest in the company and take a board seat. Board observers are clearly identified by their employment title. Outsider board members, that is, non-employee directors, are indicated by the title outsider board member or outsider board chairman. Other board members with employment titles that do not include the word “outsider” are considered to be insider board members.[10]

Table 2 presents summary statistics on the size and composition of boards of directors of privately held venture capital-backed companies.[11] Compared with boards of public companies, these boards are small. The mean board size in our sample is 4.3 members, compared with the average board size of 7.5 members for public companies in the United States reported by Linck et al. (2008). From group medians, the board is generally comprised of two venture capital investors, one insider board member and one outsider board member.[12] Table 2 tabulates board composition as financing rounds progress. In the first round, average board size is 2.9. Venture capitalists occupy 1 seat, outsiders have 0.9 seats, and insiders have one seat. However, there is substantial variation in this structure: 48.1% of these companies have two or fewer members on the board, 21.0% have three members, 14.8% have four members, and 16.1% have five or more members. As the firm receives more financing rounds, the board grows in size. Roughly 0.5 board members are added in each financing round. The number of venture capital directors and outside directors increases in each round, but the number of insider directors stays constant at one. By the time the company has received four or more financing rounds, the average board size is 5.2, with 2.4 venture capital directors, 1.6 outside directors, and only 1 insider director. At this stage, the variation in board size is also quite large: 22.5% of these companies have three or fewer board members, 52.5% have between four and six members, and 25.0% have seven or more members. Notably, approximately 0.5 founders remain on the board throughout a company’s life. We see a similar pattern in board composition if we sort by the stage of the company at the time of investment. If smallness and independence are related to superior performance and higher firm value, then venture capital investors seem to be intentionally keeping the board of these private companies small and independent.[13]

3.2 Outsider Board Members’ and Board Observers’ Work Experience

Table 3 summarizes the work experience of individuals in the data set that served as an outsider board member or a board observer. To produce Table 3, we parse each individual’s bio field and create industry classifications for each company they had worked for prior to joining the board. Each industry group is mutually exclusive, but each individual can have

10. Insider board members include individuals with titles CEO, President and CEO, President and Chairman, Chairman and CEO, and Vice Chairman.

11. The VentureSource data set marks each employee as a current employee or a past employee. To obtain the most accurate picture of the board size and board composition of these companies, we focus on current board members and exclude companies that do not have at least one current board member.

12. These statistics are reported on the Online Appendix.

13. For public companies, Boone et al. (2007) find that independence increases with board size.

Table 2. Board Composition by Maturity

Round number	1				Stage	Startup			
	n	Mean	Median	SD		*n*	Mean	Median	SD
Venture capitalist	3637	1.01	1	0.95	Venture capitalist	778	1.26	1	1.27
Outsider	3637	0.86	0	1.22	Outsider	778	1.02	1	1.24
Insider	3637	0.97	1	0.60	Insider	778	0.94	1	0.60
Individual investor	3637	0.08	0	0.35	Individual investor	778	0.08	0	0.30
Board observer	3637	0.01	0	0.12	Board observer	778	0.03	0	0.26
Board size	3637	2.93	3	1.62	Board size	778	3.34	3	2.03
Founders on board	3637	0.45	0	0.58	Founders on board	778	0.41	0	0.63
Round number	2				Stage	Product development			
	n	Mean	Median	SD		*n*	Mean	Median	SD
Venture capitalist	5698	1.29	1	1.09	Venture capitalist	4325	1.72	2	1.33
Outsider	5698	1.12	1	1.41	Outsider	4325	1.23	1	1.35
Insider	5698	0.98	1	0.64	Insider	4325	0.96	1	0.61
Individual investor	5698	0.11	0	0.42	Individual investor	4325	0.11	0	0.39
Board observer	5698	0.02	0	0.15	Board observer	4325	0.04	0	0.26
Board size	5698	3.52	3	1.88	Board size	4325	4.06	4	2.05
Founders on board	5698	0.46	0	0.60	Founders on board	4325	0.45	0	0.62
Round number	3				Stage	Generating revenue			
	n	Mean	Median	SD		*n*	Mean	Median	SD
Venture capitalist	5091	1.67	2	1.28	Venture capitalist	16,896	1.88	2	1.47
Outsider	5091	1.23	1	1.36	Outsider	16,896	1.31	1	1.41
Insider	5091	0.98	1	0.61	Insider	16,896	0.99	1	0.61
Individual investor	5091	0.14	0	0.48	Individual investor	16,896	0.14	0	0.47
Board observer	5091	0.04	0	0.22	Board observer	16,896	0.04	0	0.25
Board size	5091	4.06	4	1.94	Board size	16,896	4.37	4	2.23
Founders on board	5091	0.46	0	0.61	Founders on board	16,896	0.45	0	0.60
Round number	4+				Stage	Profitable			
	n	Mean	Median	SD		*n*	Mean	Median	SD
Venture capitalist	11,976	2.35	2	1.55	Venture capitalist	4382	1.71	1	1.42
Outsider	11,976	1.60	1	1.48	Outsider	4382	1.53	1	1.60
Insider	11,976	1.00	1	0.62	Insider	4382	1.03	1	0.66
Individual investor	11,976	0.17	0	0.51	Individual investor	4382	0.17	0	0.52
Board observer	11,976	0.06	0	0.32	Board observer	4382	0.03	0	0.23
Board size	11,976	5.19	5	2.27	Board size	4382	4.46	4	2.34
Founders on board	11,976	0.43	0	0.61	Founders on board	4382	0.44	0	0.59

This table summarizes portfolio companies' board composition by maturity. The left panel summarizes board composition by the round number where the observed round is the last round of investment that the company received. The right panel summarizes board composition by the company's investment stage at the date of its last round of funding.

experience in more than one industry group since an individual can have multiple prior work experiences. Panel A summarizes outsider board members' work experience and Panel B summarizes board observers' work experience.

There are 25,979 individuals who served as an outsider board member and 1222 individuals who served as a board observer in our data. A board

Table 3. Outsider Board Members' and Board Observers' Work Experience

Panel A: Outside board member	25,979		Panel B: Board observer	1222	
Entrepreneur	4663	17.9%	Entrepreneur	141	11.5%
VC/PE	6174	23.8%	VC/PE	812	66.4%
Other finance	6070	23.4%	Other finance	476	39.0%
Consulting	3542	13.6%	Consulting	224	18.3%
Law	741	2.9%	Law	23	1.9%
Government/non-profit	1038	4.0%	Government/non-profit	82	6.7%
Business and financial services	7356	28.3%	Business and financial services	324	26.5%
Consumer goods	2302	8.9%	Consumer goods	88	7.2%
Consumer services	2661	10.2%	Consumer services	55	4.5%
Energy and utilities	594	2.3%	Energy and utilities	10	0.8%
Healthcare	7356	28.3%	Healthcare	314	25.7%
Industrial goods and materials	1836	7.1%	Industrial goods and materials	79	6.5%
Technology	10,121	39.0%	Technology	453	37.1%

This table summarizes the work experience of individuals that served as outsider board members or board observers. The numbers do not add up to the total number of individuals at the top of each table because an individual can have more than one type of work experience.

observer is an individual who attends board meetings but does not have voting rights. Therefore, this individual provides his or her expertise to the company and has influence over the board's decisions via discussions, but, ultimately, has no say in the board's final decisions. These two groups are not mutually exclusive as one individual can serve as an outsider board member for one company and a board observer for another. First, 17.9% of outsider board members and 11.5% of board observers have entrepreneurial experience. These are individuals who have started at least one company in the past. We find a stark difference between outside board members and board observers in terms of past experience in venture capital or private equity. Roughly a quarter of outsider board members have worked in venture capital or private equity versus 66.4% of board observers. Anecdotally, venture capitalists claim that board observer roles allow them to advise portfolio companies in a more passive capacity and make it easier for them to participate in follow-on investment rounds. With the opportunity to passively monitor the company, a board observer role may serve as a consolation prize for a venture capital investor who has failed to negotiate a direct board membership position. Similarly, 23.4% of outsider board members have other finance work experience versus 39.0% of board observers. Other finance experiences include past or concurrent careers at investment banks, asset management firms, or insurance companies. The next three groups of professional experiences have similar proportions between the two board roles: 13.6% of outsider board members have consulting experience versus 18.3% of board observers, 2.9% of outsider board members have law experience versus 1.9% of board observers, and 4% of outsider board members have government or non-profit experience versus 6.7% of board observers. Finally, 10.1% of outsider board members have academic work experiences, while only 3.4% of board observers do.

The last section of both panels in Table 3 breaks down individuals' industry experiences into seven categories that match the main portfolio company industry groups summarized in Table 1. With the exception of Consumer Services, the proportion of individuals with experiences in each industry group is similar across outsider board members and board observers. If we compare these proportions to the percentage of venture capital deals in each industry, we find that the industry breakdown in Table 3 is quite similar to the proportions shown in Table 1. This similarity may suggest that there is a high degree of industry matching in the data, that is, outsider board members and board observers tend to serve on boards of companies belonging to industries in which they have expertise. Similarly, we find that 64.9% of portfolio companies in our data set have at least one outsider board member who has work experience in the same industry. However, only 38.0% of portfolio companies in our data set have at least one board observer who has work experience in the same industry. This difference may stem from the fact that a board observer has less influence, due to lack of voting rights, and from the notion that the board observer role serves as a platform for potential investors to get involved with the company before committing funds.

3.3 Probability of Board Membership

In this section, we explore the probability that a venture capital firm obtains board membership from its investment. Table 4 presents summary statistics on venture capital firm board representation along different dimensions. On average, venture capitalists receive a board seat in 44.0% of their deals. If the venture capitalist is the lead investor, the probability of receiving a board seat increases to 61.5%. When the venture capitalist is a non-lead investor, he or she receives a board seat only 35% of the time. These numbers highlight the fact that, compared with other investors, the lead investor is much more likely to get a board seat. However, the lead investor does not always get a board seat, which explains why the board size grows by 0.5 member (and not 1) every time there is a new round of financing.

The most salient pattern of our board membership statistics is how the probability of board membership decreases with the portfolio company's maturity as measured by investment round. We present this stark pattern in Figure 1. The overall probability of receiving a board seat declines in later rounds, going from 52.1% in the first round of financing to 30.1% in the fourth or later round. Examining lead investors and non-lead investors separately, we see that the probability of receiving a board seat as the lead investor starts at nearly 66.4% in the first round and declines to 48.2% in the fourth or later rounds. Similarly, the probability that a non-lead

Table 4. Probability of Board Membership

	P(Board)	*P*(Board | Lead investor)	*P*(Board | Non-lead investor)
Baseline			
All deals	43.89%	61.48%	35.04%
Round number			
1	52.09%	66.35%	44.94%
2	42.64%	64.45%	31.94%
3	34.83%	56.03%	24.10%
4+	30.07%	48.24%	20.59%
Stage			
Startup	50.76%	63.38%	44.74%
Product development	46.15%	65.66%	37.40%
Generating revenue	41.39%	59.40%	31.82%
Profitable	42.44%	55.77%	33.94%
Distance			
Local	47.43%	62.75%	38.81%
Non-local	40.82%	60.21%	31.87%
VC firm type			
Venture capital	47.59%	66.00%	38.32%
Diversified private equity	40.12%	56.14%	31.56%
Corporation venture capital	19.65%	29.77%	15.95%

This table summarizes the deal-level probability of a venture capital investor receiving board membership from an investment. *P*(Board) is the unconditional probability of obtaining board membership. *P*(Board | Lead investor) is the probability of board membership, conditional on the investor being the lead investor in that particular round of investment. *P*(Board | Non-lead investor) is the probability of board membership, conditional on the investor not being the lead investor in that particular round of investment.

investor receives a board seat in the first round is actually quite high in the first round (44.9%) but declines rapidly across financing rounds to 20.6% in the fourth or later round. The wedge between lead investors and non-lead investors tends to grow as the investment rounds progress. We observe similar patterns when we examine these probabilities across portfolio companies' investment stages.

The pattern for local and non-local deals is interesting. Venture capitalists receive board seats more often for local deals (47.43%) versus 40.82% for non-local deals. This difference, however, is driven entirely by the probability of receiving a board seat for non-lead deals. When the venture capitalist is the lead investor, they receive a board seat in 62.75% of their local deals and nearly the same rate for non-local lead deals (60.21%). For non-lead deals, venture capitalists receive a board seat in 38.81% of their local deals, but receive board seats in only 31.87% of their non-local deals. These results likely indicate that being the lead investor likely wants a board seat whether the deal is local or not. For non-lead deals, it is less important to monitor and non-local deals have a larger cost to monitoring, so they choose to take board seats less often.

Finally, we look at board representation for different type of venture capital investors. Within our sample, we have independent venture capital

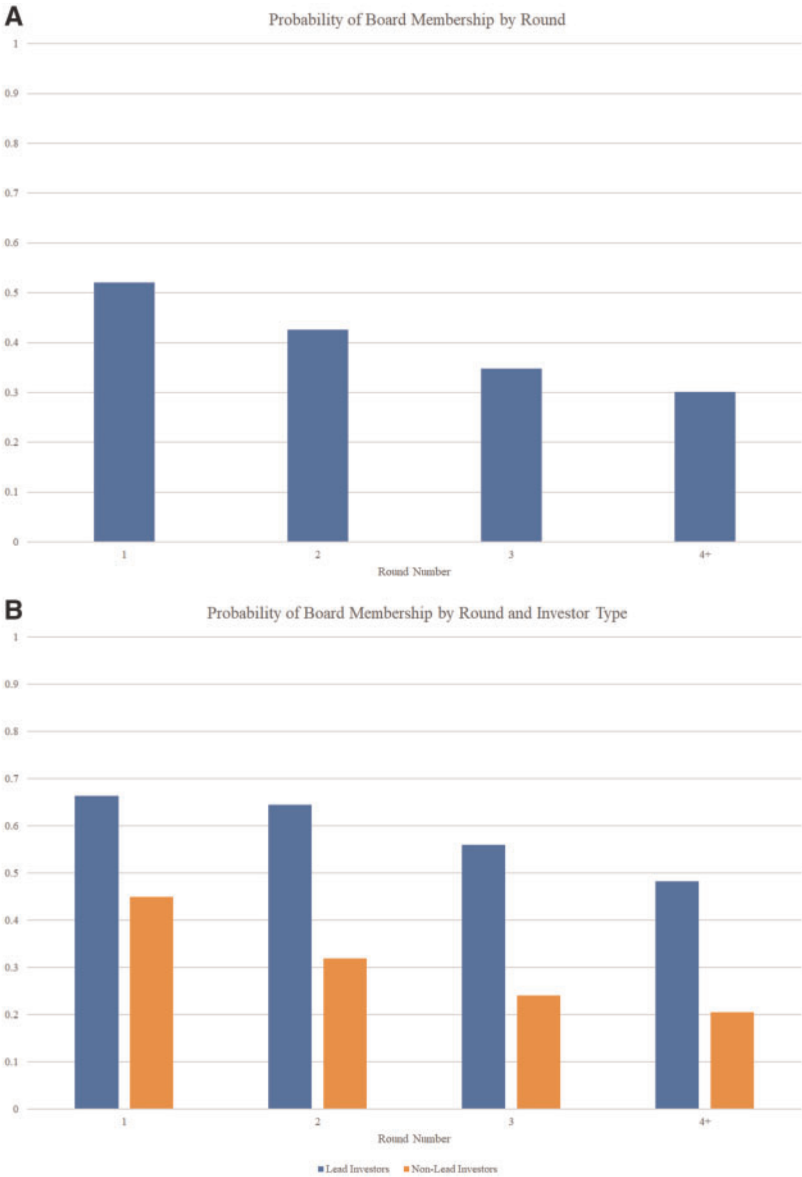

Figure 1. Probability of Board Membership.
Panel A presents probability of board membership for all venture capital investors by investment round. Panel B presents probability of board membership by investment round for lead investors and non-lead investors.

firms, diversified private equity firms, and corporate venture capital investors. Out of 5193 venture firms, we have 3232 (62.2%) independent venture capital firms, 1684 (32.5%) diversified private equity firms, and 277 (5.3%) corporate venture capital investors. The proportion of deals by investor type is similar. Independent venture firms account for 67.13% of the deals in our sample, diversified private equity firms account for 26.76%, and corporate venture capitalists account for 6.11%. Independent venture capitalists have the highest rate of board representation, receiving a seat in 47.59% of their deals, 66% of the deals in which they are lead investor, and 38.32% of their non-lead deals. Diversified private equity firms receive seats with a slightly lower frequency than independent venture capital firms. Corporate venture capital investors receive board seats with much lower frequency. Corporate venture capitalists have been frequent and important investors in startups. Their overall performance, according to Gompers and Lerner (1998), has been quite good as well. Their interest in monitoring the firm through board representation, however, appears to be less. They take board seats in only 19.65% of their deals. When corporate venture capitalists are lead investor, they take board seats only 29.77% of the time. When corporate venture capitalists are non-lead investors, they take board seats only 15.95% of the time. The probability that independent venture capital firms, diversified private equity firms, and corporate venture capitalists lead an investment round is 33.51%, 34.82%, and 26.75%, respectively. A *t*-test shows that corporate venture capitalists are significantly less likely to lead an investment round.[14] These facts highlight that corporate venture capitalists are more passive than independent venture capital firms and diversified private equity firms.

3.4 Determinants of Board Membership

In this section, we study the determinants of board membership for venture investors by examining how investor status, investor–founder relationship, and various venture capital firm characteristics affect the likelihood that a venture capital firm will obtain a board seat at the portfolio company that it funds. The investor status that we study is whether the venture capital firm is a lead investor in that particular investment round, identified by an indicator variable in the VentureSource data. The lead investor is defined as the venture capitalist who has the largest stake in the portfolio company or the venture capitalist who is involved in the initial financing round and has participated in the greatest number of investment rounds. We control for a variety of deal and venture capital firm characteristics including the venture capital firm's track record and network size. Track record is captured by *High Success Ratio*.

Table 5 presents the results of OLS regressions for the determinants of board membership. Columns 1–3 present results for first round

14. These results are reported in the Online Appendix.

Table 5. Determinants of Board Membership

	(1)	(2)	(3)	(4)	(5)	(6)
Related founder	0.1028***	0.0837***	0.0791***	0.0894***	0.0795***	0.0758***
	[0.0135]	[0.0133]	[0.0134]	[0.0178]	[0.0171]	[0.0172]
Lead investor	0.1804***	0.1775***	0.1758***	0.2761***	0.2700***	0.2682***
	[0.0095]	[0.0097]	[0.0097]	[0.0082]	[0.0079]	[0.0079]
Successful serial founder	0.0041	−0.0003	0.0038	−0.0445***	−0.0464***	−0.0448***
	[0.0114]	[0.0111]	[0.0112]	[0.0074]	[0.0073]	[0.0073]
Number of VC in round	−0.0268***	−0.0292***	−0.0298***	−0.0191***	−0.0198***	−0.0201***
	[0.0022]	[0.0022]	[0.0022]	[0.0013]	[0.0013]	[0.0014]
Stage	−0.0151***	−0.0152***	−0.0129***	−0.0376***	−0.0371***	−0.0361***
	[0.0046]	[0.0045]	[0.0045]	[0.0052]	[0.0052]	[0.0052]
Distance				−0.0015***	−0.0015***	−0.0015***
				[0.0002]	[0.0002]	[0.0002]
High success ratio		0.0883***			0.0526***	
		[0.0131]			[0.0118]	
Large network			0.1132***			0.0779***
			[0.0119]			[0.0104]
Round number	1	1	1	2+	2+	2+
Observations	37,600	37,600	37,600	43,974	43,974	43,974
R-squared	0.0626	0.0696	0.0723	0.1372	0.1395	0.1415

This table presents the results of OLS regressions for the determinants of a venture capital firm obtaining a board membership at the portfolio company that it invests in. The dependent variable is *Board Seat*, an indicator variable that equals 1 if the venture capital firm gets a board membership at the portfolio company and zero otherwise. One observation is a deal. Columns 1–3 present results for round 1 investments and the remaining columns present results for later rounds. All specifications contain industry and investment year-fixed effects. Robust standard errors are clustered at the venture capital firm level and are reported in brackets. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level. Refer to Appendix A for definition of all variables.

investments and Columns 4–6 present results for second rounds or later. Separating the sample this way helps mitigate the endogeneity concern that comes with using the distance between the venture capital firm and the portfolio company as an explanatory variable in Columns 4–6, since it is possible that a company will choose to locate near its first-round venture capitalist once it has secured an agreement for financing. For this analysis, we only include portfolio companies for which we have founder data to calculate the variable *Related Founder*, an indicator variable that equals 1 if the at least one founder had worked at another portfolio company that the VC firm funded in the past. In Columns 1–3, we find that each factor that we include is significantly correlated with board membership. Having a prior relationship with the founder increases the probability of board membership by almost 10%. An established relationship helps reduce information asymmetry between investors and founders. In effect, the founder will have a better idea of the contributions that the venture capital firm can make as a board member. Furthermore, the probability that a venture capital firm will obtain board membership increases by 18% when it is a lead investor in that investment round. This result makes sense because the lead investor is often the firm that sources the deal, invests the most capital, and hence, has the deepest relationship with individuals who work at the portfolio companies. As a result, that firm would be the most suitable party to monitor the investment for the syndicate of venture investors. With the base rate of board membership of 43.9%, these marginal effects are economically significant. *Number of VC in Round* and *Stage* are negatively correlated with board membership. These results are intuitive because any one venture capital investor is less likely to take a board seat if there are more VC firms to choose from and the board of a later stage company already has existing venture capital directors and so there is less of an ability to add the new venture capitalist as a director. Column 2 shows that venture capital firms with good track records also have a higher likelihood of board membership. *High Success Ratio* is an indicator variable that equals 1 if the venture capital firm's success ratio is greater than the median venture capital firm's success ratio in the investment year. Success ratio is defined as the proportion of past deals that exited via an IPO. All else being equal, more established and successful venture capital firms are likely to be more desirable as board members.

Gorman and Sahlman (1989) suggest that management and board member recruiting is one of the most important tasks that venture capitalists perform for their portfolio companies. More recent survey evidence in Gompers et al. (2018) shows that most of the 885 VCs respond that recruiting board members and employees is an important activity that they undertake and the majority indicate that the quality of the team is the most important factor determining success. With this point in mind, we include variables that proxy for the venture capital firm's ability to recruit key personnel for their portfolio companies. Since venture capitalists recruit both managers and board members for their portfolio companies, we include variables that measure the venture capital firm's network of managers and outsider board members. To construct the variable *Large Network*, we first calculate the number of managers and outsider board members in the data that belong to each venture capital firm's network at the beginning of the year that the deal was made, then we divide this number by the number of possible managers and board members that the venture capital firm could be connected at that point in time. Then, a venture capital firm is considered to have a large network if its network size is larger than that of the median venture capital firm in that year. Hence, *Large Network* is an indicator variable. Column 3 in Table 5 shows that having a large network of outsider managers and outsider board members is highly correlated with board membership, even after we control for other relevant factors.

Lerner (1995) shows that the distance between the venture capital investor and the portfolio company is an important determinant of board membership. One concern, however, is that the relationship between distance and board membership for first round investments may be endogenous. Startup companies (which likely do not have a permanent office prior to funding) may find offices near their board members. A young portfolio company may choose to co-locate with a venture capital firm after it gives a board seat to that firm in order to facilitate business operations. In order to deal with this potential endogeneity, we restrict our analysis of distance to second or later rounds of investment.

Columns 4–6 present results of OLS regressions for determinants of board membership for investments in rounds 2 or later. The variable of interest is *Distance*, which is the distance between the venture capital firm's headquarter and the portfolio company, measured in hundreds of miles. Consistent with Lerner (1995), we find that the distance between the venture capital firm and the portfolio company is an important determinant of obtaining a board seat, all else being equal. The farther away the portfolio company is, the less likely it is that the venture capital firm will obtain a board seat from that particular investment. One explanation is that a venture capitalist's time is scarce and valuable. Therefore, taking a board seat at a portfolio company that is far away from his home office is a costly endeavor.

It is informative to discuss the results above within the framework of entrepreneur–investor bargaining power. Gompers et al. (2010) find that entrepreneurs who start a successful company continue to do so, which partly explains the persistent performance of some venture capital firms. We use this insight in our paper to study how relative bargaining power between entrepreneurs and investors affect the probability of board membership. *Successful serial founder* is an indicator variable that equals 1 when the portfolio has at least one founder who had previously started a company that reached the IPO stage and zero otherwise. Regressions in Columns 4–6 show that, all else equal, a venture capital investor is 4.5% less likely to receive board membership when he or she invests in a company that has at least one successful serial founder. With a base rate of board membership for deals done in rounds 2 or later of 37%, this marginal effect is economically significant. This highlights the founding team's bargaining power that stems from their ability to persistently start successful companies. Venture capitalists who would like to invest in these companies will naturally have less bargaining power, since the investment has a higher probability of success. Next, we find the number of venture capital investors in the investment round is negatively correlated with board membership. The number of venture capital investors in an investment round proxies for how "hot" that particular company is. With more venture capitalists willing to invest, each venture capitalist will have less bargaining power. Lastly, we find that venture capitalists with more successful track records and larger networks are more likely to obtain board memberships. Under the lens of relative bargaining power between entrepreneurs and investors, this result shows that investors with superior reputation and more resources to contribute have more bargaining power over the entrepreneur and, hence, are more likely to obtain board membership.

Overall, these results are consistent with the view that board members of private, venture capital-backed companies are viewed as adding value to the company. Proxies for the ability to add value increase the likelihood of a venture capitalists receiving a board seat. Hence, founders view VCs who can potentially add value as important people to add to the board and therefore grant them seats.

4. Board Membership and Service

Next, we explore potentially beneficial services that venture capitalists provide to portfolio companies. Our motivation is to provide suggestive evidence that VCs do, in fact, take actions that can be plausibly seen as important sources of value for portfolio companies. Additionally, we show that these actions are far more likely when a VC receives a board seat than when they are just an investor. This would indicate that the role of directors in VC-backed companies differs from that in public companies in which directors play more of an oversight role. Specifically, we study the extent to which venture capitalists recruit outsider managers and outsider board members for their portfolio companies and facilitate acquisitions of their portfolio companies.

Management and board member recruiting are valuable activities that venture capitalists can undertake as active investors. Venture capitalists surveyed by Gorman and Sahlman (1989) and Gompers et al. (2018) report that management recruiting is one of the important services that they most frequently performed for their portfolio companies. Furthermore, both Gorman and Sahlman (1989) and Gompers et al. (2018) cite weak senior management as the dominant cause of venture failure. Hence, venture capital investors can add post-investment value by recruiting key employees for their portfolio companies. A new recruit that belongs to the venture capitalist's network is suggestive of a valuable contribution because the venture capitalist is utilizing his or her network to find a suitable candidate for an opening at the portfolio company. Having a personal connection to an individual through a prior investment provides the venture capitalists with greater insight into the ability of the potential board member or employee to add value to the specific company. Similarly, knowing the individual helps the venture capitalist convince them to join the company. Therefore, we explore whether board membership is a channel through which venture capitalists could influence portfolio companies' hiring decisions including recruiting outsider managers and board members. Our strategy is to examine whether venture capitalists who receive board membership recruit more managers and board members into the portfolio company than venture capitalists who do not receive board membership.

Gompers and Xuan (2009) find that venture capitalists form a bridge between private VC-backed targets and public acquirers. Specifically, their work finds that: (1) acquisition announcement returns are more positive for acquisitions in which both the target and the acquirer are financed by the same VC firm and (2) acquisition is more likely to occur when there is a common VC link between the acquirer and the target. In the context of this paper, we explore the extent in which board membership facilitates the

Mergers and Acquisitions (M&A) activities between two portfolio companies that have a common VC link, that is, the acquirer also received funding from the same VC firm in the past. We refer to these events as related M&As.

4.1 Related Outsider Manager Recruiting

Table 6 presents the OLS regression results for outsider manager recruiting. The dependent variable is the natural log of one plus the number of non-founder managers who are connected to the VC firm via previous employment, that is, the manager had worked at a portfolio company that the VC firm backed in the past. The results show that a VC firm that took a board recruits 2.46% more managers from its network than a non-board VC firm. As mentioned before, this number should be treated as a lower bound because the way that we defined manager–VC relationship is very narrow. Other covariates also have intuitive signs. Lead investors, high-quality VC firms, and well-connected VC firms recruit more managers for their portfolio companies. The lead investor result can be interpreted as the lead investor taking a more active role in the portfolio company than non-lead investors. The high-quality VC firm result suggests that management recruiting may be important to investment success because, otherwise, a VC firm with a strong track record would not engage in it. The well-connected VC firm result implies that VC firms with more people in their network are better suited to recruit managers for the portfolio company. Finally, more related managers are recruited for earlier stage companies which is not surprising because an earlier stage company is less likely to have a complete management team than a more mature one.

We also explore whether board seats are more important for related recruiting for high success venture capital investors and those with larger networks from which to draw. Columns 4 and 5 interact having a board seat with our success and manager size variables. The results indicate that manager recruiting is far more important for highly successful and large manager network venture capitalists. The coefficient on the interaction term is approximately of the same magnitude as the coefficient on *High Success Ratio* (in Column 1) and *Large Manager Network* (in Column 2). We find that more successful and well-connected venture capital firms on the board engage in significantly more related manager recruiting than their less successful and connected counterparts on the board. Furthermore, the coefficients on *Board Seat* in Columns 4 and 5 become close to zero, which suggests that successful and well-connected VC firms on the board are responsible for *most* of the recruiting effect that we see in Columns 1–3. Overall, these results suggest that successful and well-connected venture capital firms recruit significantly more related managers than their less successful and less connected counterparts and the effect of past success and connectedness is particularly pronounced when venture capital firms sit on boards.

Table 6. Outsider Manager Recruiting

	(1)	(2)	(3)	(4)	(5)
Board seat	0.0246***	0.0212***	0.0203***	0.0025	−0.0031**
	[0.0034]	[0.0030]	[0.0031]	[0.0019]	[0.0015]
Lead investor	0.0068***	0.0037*	0.0038*	0.0037*	0.0036*
	[0.0022]	[0.0021]	[0.0021]	[0.0021]	[0.0021]
Number of VC in round	0.0007*	−0.0004	−0.0004	−0.0004	−0.0004
	[0.0004]	[0.0004]	[0.0004]	[0.0004]	[0.0004]
Stage	−0.0209***	−0.0210***	−0.0201***	−0.0210***	−0.0201***
	[0.0015]	[0.0014]	[0.0014]	[0.0014]	[0.0014]
High success ratio		0.0515***		0.0400***	
		[0.0031]		[0.0032]	
Large manager network			0.0568***		0.0448***
			[0.0027]		[0.0029]
Board seat×high success ratio				0.0276***	
				[0.0049]	
Board seat×large manager network					0.0306***
					[0.0044]
Observations	81,780	81,780	81,780	81,780	81,780
R-squared	0.0189	0.0315	0.0317	0.0324	0.0326

This table reports OLS regression results for the effect that board membership has on the venture capital firm's management recruiting activity. The dependent variable is the natural log of one plus *Number of Related Managers*, which is the number of related managers that the venture capital firm recruits into the portfolio company. *Board Seat* is an indicator variable that equals 1 if the venture capital firm receives board membership from its investment and zero otherwise. One observation is a deal. All specifications contain industry and investment year-fixed effects. Robust standard errors are clustered at the venture capital firm level and are reported in brackets. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level. Refer to Appendix A for definition of all variables.

4.2 Related Outsider Board Member Recruiting

Gorman and Sahlman (1989) report that board member recruiting is also one of the services that venture capitalists provide to their portfolio companies. With their deep professional experience, outsider board members are recruited to oversee the management team and make sure that the portfolio company is heading in the right direction. For example, in early-stage investments, outsider board members are recruited by venture capitalists to coach the CEO and act as a sounding board for him or her (Rosenstein et al. 1993).

Table 7 presents the OLS regression results for outsider board member recruiting. In Column 1, the coefficient on *Board Seat* is small and statistically insignificant. In Columns 2 and 3, the coefficient is small, negative, and also statistically insignificant. We interpret the board membership result as a substitution between board membership and recruiting a related outsider board member for the portfolio company. One role that outsider board members play is to monitor the portfolio company and provide strategic advice. From the venture capitalist's perspective, this could be done by the venture capitalist herself or by a trusted person from their network. Therefore, if the venture capitalist can recruit someone from her network, the need to personally sit on the board may be less.

Table 7. Outsider Board Member Recruiting

	(1)	(2)	(3)	(4)	(5)
Board seat	0.0008	−0.0031	−0.0042	−0.0119***	−0.0136***
	[0.0030]	[0.0026]	[0.0027]	[0.0022]	[0.0020]
Lead investor	0.0202***	0.0167***	0.0165***	0.0166***	0.0164***
	[0.0025]	[0.0024]	[0.0024]	[0.0024]	[0.0024]
Number of VC in round	−0.0023***	−0.0036***	−0.0035***	−0.0036***	−0.0035***
	[0.0004]	[0.0004]	[0.0004]	[0.0004]	[0.0004]
Stage	−0.0246***	−0.0248***	−0.0237***	−0.0248***	−0.0237***
	[0.0016]	[0.0015]	[0.0015]	[0.0015]	[0.0015]
High success ratio		0.0588***		0.0534***	
		[0.0029]		[0.0030]	
Large board network			0.0657***		0.0609***
			[0.0026]		[0.0027]
Board seat×high success ratio				0.0130***	
				[0.0043]	
Board seat×large board network					0.0124***
					[0.0040]
Observations	81,780	81,780	81,780	81,780	81,780
R-squared	0.0242	0.0384	0.0391	0.0386	0.0392

This table reports OLS regression results for the effect that board membership has on the venture capital firm's outsider board member recruiting activity. The dependent variable is the natural log of one plus *Number of Related Outsider Board Members*, which is the number of related outsider board member that the venture capital firm recruits into the portfolio company. *Board Seat* is an indicator variable that equals 1 if the venture capital firm receives board membership from its investment and zero otherwise. One observation is a deal. All specifications contain industry and investment year-fixed effects. Robust standard errors are clustered at the venture capital firm level and are reported in brackets. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level. Refer to Appendix A for definition of all variables.

Other covariates have similar signs and interpretations as appear in Table 6. Lead investors are more likely to recruit outside directors from their network. Similarly, recruiting of outside board members from their network is more common for venture capitalists investing in early stage companies. It is plausible that trusted, qualified outside directors will be more valuable for early stage companies that need strategic advice. The results also show that it is the highly successful venture capitalists and those with large networks who engage in recruiting outside directors from their network. These investors appear to be more active and may plausibly add more value to the companies in which they invest.

The interaction terms also provide important insights. The coefficients on past success, network size, and their interactions with board membership are all positive and statistically significant. Again, successful and well-connected venture capital firms recruit significantly more related outsider board members than their less successful or less connected counterparts, especially when these venture capital firms are on the boards. The results suggest that, qualitatively, the significant part of related outsider board member recruiting is done by well-connected VC firms, both on and off the portfolio company's board.

4.3 Related Mergers and Acquisitions

Motivated by Gompers and Xuan (2009), we explore whether M&A activity between two portfolio companies can be facilitated by a common connection to the VC firm that serves as a board member of the target. To construct the outcome variable *Related M&A*, for each portfolio company that exited via M&A, we match the name of the acquirer to other portfolio companies in our data. Once we get a match, we check whether the acquirer was funded by a VC firm that invested in the target. For example, portfolio company A was acquired by portfolio company B. We find that both companies were funded by VC firm X. Thus, for the deal-level observation for VC firm X and portfolio company A, *Related M&A* equals 1. For the portfolio company, this service can potentially be valuable because the relationship can alleviate asymmetric information and lead to potentially higher acquisition values. Furthermore, Gompers and Xuan (2009) show that, in the public realm, acquisition announcement returns are more positive for these related acquisitions.

Table 8 presents OLS results for board membership and related M&A. The regression results show that M&A events where the acquirers were also funded by the same VC firms are more likely to occur through the networks of VC firms on the board. The coefficient on *Board Seat* in Column 1 is 0.37% and the base rate for *Related M&A* is 0.74%. Column 1 shows that a related M&A is 50% more likely to occur through the connections of VC firms on the board than through the connections of non-board VC firms. As discussed earlier, this number should be treated as a lower bound. Columns 2 and 3 indicate that a portfolio company is more likely to experience a related M&A event when it receives funding from more successful and well-connected VC firms. Even after controlling for network size and past success, having a board seat is still associated with acquisitions by related companies. In Columns 4 and 5, we once again interact *Board seat* with our success and large network measures. The result for successful venture capital firms or a well-connected venture capital firm on the board is strong and significant. Having a successful venture capital firm on the board is associated with a higher probability of a related M&A by 0.79% (0.19 + 0.38 + 0.22). This translates to more than a 100% increase in relative terms. Having a well-connected venture capital firm on the board is associated with a higher probability of a related M&A for the portfolio company by a similar magnitude. This result suggests that board membership is indeed important for the occurrence of related M&As.

5. Conclusion

The role of board members in companies has been extensively examined in public firms. Most directors of public companies serve an oversight function and provide high level strategic advice. We contrast this role with the role that venture capitalists play in the private firms that they finance.

Table 8. Related M&A

	(1)	(2)	(3)	(4)	(5)
Board seat	0.0037***	0.0034***	0.0034***	0.0019**	0.0016*
	[0.0007]	[0.0007]	[0.0007]	[0.0009]	[0.0009]
Lead investor	0.0024***	0.0021***	0.0022***	0.0021***	0.0022***
	[0.0007]	[0.0007]	[0.0007]	[0.0007]	[0.0007]
Number of VC in round	−0.0003***	−0.0004***	−0.0004***	−0.0004***	−0.0004***
	[0.0001]	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Stage	−0.0018***	−0.0019***	−0.0018***	−0.0018***	−0.0018***
	[0.0004]	[0.0004]	[0.0004]	[0.0004]	[0.0004]
High success ratio		0.0047***		0.0038***	
		[0.0006]		[0.0007]	
Large network			0.0046***		0.0037***
			[0.0006]		[0.0007]
Board seat×high success ratio				0.0022*	
				[0.0012]	
Board seat×large network					0.0023*
					[0.0013]
Observations	81,780	81,780	81,780	81,780	81,780
R-squared	0.0031	0.0037	0.0036	0.0037	0.0036

This table reports OLS regression results for the effect that board membership has on the likelihood of a related M&A. The dependent variable is *Related M&A*, an indicator variable that equals 1 if the portfolio company eventually gets acquired by another company that the venture capital firm funded in the past. *Board Seat* is an indicator variable that equals 1 if the venture capital firm receives board membership from its investment and zero otherwise. One observation is a deal. All specifications contain industry and investment year-fixed effects. Robust standard errors are clustered at the venture capital firm level and are reported in brackets. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level. Refer to Appendix A for definition of all variables.

Venture capital investors are chosen, in part, for their ability to bring resources to bear for the portfolio companies' future growth and success. Our paper finds that venture capitalists are actively engaged in the companies in which they invest and much of this activity is mediated when they join the portfolio company's board of directors. These activities appear to be appreciated by entrepreneurs, who are more likely to give board seats to successful and well-connected venture capitalists.

We provide a deep description of the frequency of board representation and how it depends upon being the lead investor. We find that venture capitalists receive a board seat in 43.9% of their deals. Being a lead investor increases the likelihood that the venture capital investor will receive a board seat to approximately 61.5%. In other words, although lead investors are more likely to get board seats, not all past lead investors are represented on the board at subsequent financing rounds. When we examine these statistics by investor type, we find that independent venture capital firms and diversified private equity investors take board seats at similar rates. Corporate venture capital investors are far less likely to take board seats, even if they are the lead investor.

With a comprehensive sample of venture capital-backed startup companies, we explore the composition and size of the boards of directors and identify important determinants of board membership. We find that the board of an average private venture capital-backed company is primarily composed of outsider board members and institutional investors, that is, venture capitalists. As these companies receive more financing rounds, the number of outsider board members and institutional investor board members increases, while the number of insider board members remains small. For determinants of board membership, we find that lead investor status, investor track record, manager and board member network size, investor–founder relationship, and geographical proximity increase the likelihood that a venture capital firm will receive board membership. All of these factors are plausibly related to the value that venture capitalists can provide to portfolio companies and, hence, are positively related to getting a board seat.

Successful and well-connected venture capital board members are responsible for the recruiting activities we identify in the data because they have the connections and skill to choose the right person for the job. Furthermore, venture capitalists on the board are associated with related acquisitions, that is, events in which the portfolio company is acquired by another company in which the same venture capital firm had previously invested. Similar to the recruiting results, the majority of these relationship-based transactions are mediated by successful venture capitalists on the target company's board. These findings support the notion that venture capitalists are active investors who succeed not only by picking good investment opportunities, but also by taking actions that influence portfolio companies' decisions including key employee recruitment and relationship-based acquisitions. In future work, we hope to explore the impact of these activities on the outcomes and returns to venture capital investments.

These results build upon prior work that looks at what venture capitalists actually do. Kaplan and Stromberg (2003) look at the investment contracts that venture capitalists utilize. In particular, they show that VC investment contracts typically provide separate and defined board composition rights to the investors. Similarly, Kaplan and Stromberg (2004) examine the investment memos of venture capital firms and find that nearly half anticipate being involved in helping recruit management to the portfolio company. By demonstrating that venture capitalists follow through by actually recruiting managers and board members from their network, we demonstrate that the VCs intentions lead to actions. Additionally, we provide deeper insights by showing that entrepreneurs understand that high performing venture capital firms and highly connected venture capital firms are those that can engage in these activities more often.

Similarly, the importance of venture capitalists' networks is highlighted in Hochberg et al. (2007) who show that when connections are defined as relationships with other VCs, well-connected VCs perform better and their portfolio companies perform better. Our measure of connectedness (connections to individual mangers and board members from prior investments) complements their measure (VC firm connections to other VC firms). In particular, we show one mechanism on how venture capitalists utilize their networks to potentially bring value to their portfolio companies.

We believe that future work should more deeply explore the role of boards of directors in private companies. For example, Gompers et al. (2018) shows that venture capitalists say that contacts with potential customers are an important role they play in portfolio companies. Additionally, the frequency of board meetings at venture capital-backed companies may indicate that the strategic advice provided by board members is of substantial value. Exploring these and other actions that are taken by board member venture capitalists and how they incrementally increase the probability of success would continue to distinguish the importance of the active role that venture capitalists play in the growth of high potential companies.

Supplementary Material

Supplementary material is available at *Journal of Law, Economics, & Organization* online.

Conflict of interest statement. None declared.

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Appendix A

Table A1. Variable Definition

Variable	Definition
Board seat	Equals 1 if the VC firm receives board membership from its investment and zero otherwise.
Lead investor	Equals 1 if the VC firm was the lead investor in the deal and zero otherwise.
Number of VC in round	Number of VC firms that co-invested in the investment round.
Distance	The distance in hundreds of miles between the VC firm's headquarter office city and the portfolio company's head-quarter office city.
High success ratio	Equals 1 if the VC firm's success ratio is higher than that of the median VC firm's at the beginning of the year that the deal closed. Success ratio is the percentage of past invest-ments that reached the IPO stage.
Large network	Equals 1 if the VC firm's network of managers and board members are larger than that of the median VC firm's at the beginning of the year that the deal closed. Network is calcu-lated as the number of managers and board members that the VC firm is connected to divided by the total number of managers and board members in the entire VC industry.
Large manager network	Equals 1 if the VC firm's network of managers is larger than that of the median VC firm's at the beginning of the year that the deal closed. Network is calculated as the number of managers that the VC firm is connected to divided by the total number of managers in the entire VC industry.
Large board network	Equals 1 if the VC firm's network of board members is larger than that of the median VC firm's at the beginning of the year that the deal closed. Network is calculated as the number of board members that the VC firm is connected to divided by the total number of board members in the entire VC industry.
Number of related managers	The number of managers who had worked at a portfolio company that the VC firm backed in the past and started working at the current portfolio company on or after the in-vestment date.
Number of related outsider board members	The number of outsider board member who had worked at a portfolio company that the VC firm backed in the past and started working at the current portfolio company on or after the investment date.
Related M&A	Equals 1 if the portfolio company eventually gets acquired by a portfolio company that the VC firm invested in the past and 0 otherwise.
Stage	Equals 1 for startup, 2 for product development, 3 for gener-ating revenue, and 4 for profitable.
Successful serial founder	Equals 1 if the portfolio company has at least one founder who had previously started a company that went public and zero otherwise.