



How do venture capitalists make decisions?☆

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ABSTRACT

We survey 885 institutional venture capitalists (VCs) at 681 firms to learn how they make decisions. Using the framework in Kaplan and Strömberg (2001), we provide detailed information on VCs' practices in pre-investment screening (sourcing evaluating and selecting investments), in structuring investments, and in post-investment monitoring and advising. In selecting investments, VCs see the management team as somewhat more important than business-related characteristics such as product or technology although there is meaningful cross-sectional variation across company stage and industry. VCs also attribute the ultimate investment success or failure more to the team than to the business. While deal sourcing, deal selection, and post-investment value-added all contribute to value creation, the VCs rate deal selection as the most important of the three. We compare our results to those for chief financial officers (Graham and Harvey, 2001) and private equity investors (Gompers et al., 2016a).

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1. Introduction

Over the past 30 years, venture capital (VC) has been an important source of financing for innovative companies. Firms supported by VC, including Amazon, Apple, Facebook, Gilead Sciences, Google, Netflix, Starbucks, and others have had a large impact on the US and global economy. Kaplan and Lerner (2010) estimate that roughly one-half of all true initial public offerings (IPOs) are VC-backed even though fewer than one-quarter of 1% of companies receive venture financing. Gornall and Strebulaev (2015) estimate that public companies that previously received VC backing account for one-fifth of the market capitalization and 44% of the research and development spending of US public companies. Consistent with this company-level performance, Harris et al. (2014, 2016) find that, on average, VC funds have outperformed the public markets net of fees.

The success of VC-backed companies is consistent with VCs taking actions that are effective at generating value. Kaplan and Strömberg (2001) argue that VCs are particularly successful at solving an important (principal-agent) problem in market economies—connecting entrepreneurs with good ideas (but no money) with investors who have money (but no ideas). They highlight the importance of pre-investment screening, sophisticated contracting, and post-investment monitoring and advising. (See, also, Gompers and Lerner, 2001.)

Since 2001, a great deal of additional empirical work has explored VC decisions and actions. Nevertheless, that empirical work has left gaps in our understanding of what VCs actually do. In this paper, we seek to add to that empirical work by surveying 885 VCs representing 681 different VC firms and asking how they make decisions about their investments and portfolios. We augment the survey by interviewing 29 VCs to provide clarification, greater detail, and additional insight on some of the questions.¹

Using the framework in Kaplan and Strömberg (2001), we provide detailed information on VCs' practices in pre-investment screening (sourcing evaluating and selecting investments), in structuring investments, and in post-investment monitoring and advising. We also explore cross-sectional variation in VC practices across industry, stage, geography, and past success. Our survey allows us to conduct a detailed examination of what venture capital firms actually do.

Like the foundational survey work of Lintner (1956) on dividend policy and Graham and Harvey (2001) on CFO financial policies, we attempt to provide a clear set of observations about how venture capitalists make decisions. While papers have been written on both the theory of venture capital and large sample empirical results, our survey evidence attempts to deepen our understanding of VC decisions, highlight gaps in research, and open up new areas for examination much like Graham and Harvey did for corporate financial policy. While we interpret our results in light of existing research, the survey is also meant to inform both academics and practitioners about VC practice in a more granular way.

This survey has several characteristics that allow us to attempt this. First, it is the most comprehensive survey of venture capitalists that we have seen. We survey a large fraction of the industry as well as most of the top-performing venture capital firms. Second, the survey is broad, covering many areas of decision-making. Finally, our ability to match respondents to firm characteristics and performance allows us to examine patterns in responses that may be helpful in theory building and hypothesis testing for future work.

We begin by evaluating pre-investment screening. We first consider how VCs source their potential investments—a process also known as generating deal flow. Sahlman (1990) provides a description of this process. We explore where VCs' investment opportunities come from and how they sort through those opportunities. The average firm in our sample screens 200 companies and makes only four

investments in a given year. (We report results by firm, averaging the responses for firms with multiple respondents.) Most of the deal flow comes from the VCs' networks in some form or another. Over 30% of deals are generated through professional networks. Another 20% are referred by other investors while 8% are referred by existing portfolio companies. Almost 30% are proactively self-generated. Only 10% come inbound from company management. These results emphasize the importance of active deal generation.

Next, we examine VC investment selection decisions. There is a great deal of debate among academics and practitioners as to which screening and selection factors are most important. Kaplan and Strömberg (2004) describe and analyze how VCs select investments. They confirm previous survey work that VCs consider factors that include the attractiveness of the market, strategy, technology, product or service, customer adoption, competition, deal terms, and the quality and experience of the management team. They do not distinguish the relative importance of the different factors. Kaplan et al. (2009) develop a “jockey vs. horse” framework to examine what factors are more constant over the life of a successful VC investment. The entrepreneurial team is the “jockey” while the strategy and business model are the “horse.” Baron and Hannan (2002) and Hellmann and Puri (2000) both focus on how founding teams are formed and their attractiveness as investment opportunities. Gompers et al. (2010) show that past success as an entrepreneur is an important factor that VC firms focus on when attracting potential investments. We ask the VCs whether they focus more on the jockey or the horse in their investment decisions. We also ask the VCs what they look for in the teams in which they invest.

We find that in selecting investments, VCs place the greatest importance on the management/founding team. The management team was mentioned most frequently both as an important factor (by 95% of VC firms) and as the most important factor (by 47% of VC firms). Business (or horse) related factors were also frequently mentioned as important with business model at 83%, product at 74%, market at 68%, and industry at 31%. The business-related factors, however, were rated as most important by only 37% of firms. The company valuation was ranked as fifth most important overall, but third in importance for later-stage deals. Fit with fund and ability to add value were ranked as less important. Early-stage investors and information technology (IT) investors place relatively more weight on the team.

We then explore the tools and assumptions that VCs utilize in evaluating the companies they select. Prior survey evidence on financial decisions is mixed. Graham and Harvey (2001) find that the CFOs of large companies generally use discounted cash flow (DCF) and internal rate of return (IRR) to evaluate investment opportunities. Gompers et al. (2016a), in contrast, find that private equity (PE) investors rarely use DCF, preferring IRR or multiple of invested capital (MOIC). The paucity of historical operating information and the uncertainty of future cash flows makes VCs' investment decisions difficult and less like those in the typical setting taught in MBA finance curric-

¹ We thank the referee for suggesting we do the additional interviews.

ula. Given this difference, we explore the extent to which VCs employ the commonly taught DCF method or, instead, rely on different ones.

Like PE investors (and unlike CFOs), few VCs use discounted cash flow or net present value (NPV) techniques to evaluate their investments. Instead, the most commonly used metric is MOIC or, equivalently, cash on cash return. The next most commonly used metric is IRR.

At the same time, unlike the CFOs and PE investors, 9% of the overall respondents and 17% of the early-stage investors do not use any quantitative deal evaluation metric. And 20% of all VCs and 31% of early-stage VCs reported that they do not forecast cash flows when they make an investment. This is consistent with the large uncertainty at the early stage making it difficult to make such analyses. Our interviews confirm that some VCs do not create forecasts as well as the existence of a great degree of heterogeneity in VC practices.

After exploring pre-investment activities, we consider how VCs write contracts and structure investments. Kaplan and Strömberg (2003) study VC contracts and conclude that they are structured to ensure both that the entrepreneur does well if he or she performs well and that investors can take control if the entrepreneur does not perform. They show that VCs achieve these objectives by allocating cash flow rights (the equity upside that provides incentives to perform), control rights (the rights VCs have to intervene if the entrepreneur does not perform), liquidation rights (the senior payoff to VCs if the entrepreneur does not perform), and employment terms, particularly vesting (which gives the entrepreneur incentives both to perform and stay with the firm). Less is known, however, about which of these terms are more important to VCs and how they make trade-offs among them. In our survey, we ask the VCs the extent to which they are willing to negotiate different terms.

We find that the VCs are relatively inflexible on prorata investment rights, liquidation preferences, anti-dilution protection, vesting, valuation, and board control. They are more flexible on the option pool, participation rights, investment amount, redemption rights, and particularly dividends. The inflexibility, particularly on control rights and liquidation rights, is arguably consistent with the results in Kaplan and Strömberg (2003, 2004).

We move from contracts and structuring to examine how VCs monitor and add value to their portfolio companies after they invest. Part of the added value comes from improving governance and active monitoring. This often means replacing entrepreneurs if they are not up to the task of growing their companies. For example, Baker and Gompers (2003) find that only about one-third of VC-backed companies still have a founder as chief executive officer (CEO) at the time of IPO. Amornsiripanitch et al. (2016) show that VCs aid in hiring outside managers and directors. Hellmann and Puri (2002) show that VCs are important to the professionalization of startups. Lerner (1995) examines how VCs are influential in the structuring of the boards of directors. In their study of investment memoranda, Kaplan and Strömberg (2004) find that VCs expect to add value in their investments at the time they make them. In this survey, we further explore these issues

by asking the VCs to describe in detail the ways in which they add value.

VCs generally responded that they provide a large number of services to their portfolio companies post-investment—strategic guidance (87%), connecting investors (72%), connecting customers (69%), operational guidance (65%), hiring board members (58%), and hiring employees (46%). This is consistent with VCs adding value to their portfolio companies and similar to the results for PE investors in Gompers et al. (2016a).

Having looked at all aspects of VC involvement, we then consider which of those activities are more important for value creation. Sørensen (2007) studies how much of VC returns are driven by deal sourcing and investment selection versus VC value-added. He concludes that both matter, with roughly a 60/40 split in importance. We further explore this issue by asking the VCs directly to assess the relative importance of deal sourcing, deal selection, and post-investment actions in value creation in their investments. Unlike Sørensen (2007), we distinguish between deal sourcing and deal selection. A majority of VCs reported that each of the three—deal flow, deal selection, and post-investment value-added—contributed to value creation with deal selection being the most important of the three. Deal selection is ranked as important by 86% of VCs and as most important by 49% of VCs. Post-investment value-added is seen as important by 84% of VCs and as most important by 27% of VCs. Deal flow is ranked as important by 65% and as most important by 23%. These results are consistent with the estimates in Sørensen (2007) that deal flow and deal selection are more important than value-add, but that all three are important. These results, however, extend and inform Sørensen (2007) by distinguishing between deal flow and deal selection.

We then asked VCs what factors contributed most to their successes and failures. Again, the team was by far the most important factor identified, both for successes (96% of respondents) and failures (92%). For successes, each of timing, luck, technology, business model, and industry were of roughly equal importance (56% to 67%). For failures, each of industry, business model, technology, and timing were of roughly equal importance (45% to 58%). Perhaps surprisingly, VCs did not cite their own contributions as a source of success or failure.

We conclude by exploring issues related to internal VC firm structure and activity to understand how VCs allocate their time to different activities. When possible, we discuss how the organization and structure relate to VC decision-making. The average VC firm in our sample is small, with 14 employees and five senior investment professionals. Consistent with the importance of both deal sourcing and post-investment value-added, the VCs report that they spend an average of 22 h per week networking and sourcing deals and an average of 18 h per week working with portfolio companies out of a total reported work week of 55 h. The paper proceeds as follows. Section 2 describes our research design and reports summary statistics.

Section 3 describes the VCs' responses to our survey for pre-investment activities with subsections corresponding to deal sourcing (3.1), investment selection (3.2), and valuation (3.3). Section 4 describes the VCs' responses to

questions about deal structure. [Section 5](#) considers the VCs' responses to post-investment value-add. [Section 6](#) further explores value creation by discussing the VCs' responses to the relative importance of sourcing, selection, and value-add and their perceived drivers of success and failure. [Section 7](#) describes the internal VC structure and VC activities. [Section 8](#) summarizes and concludes.

2. Methodology

2.1. Design

In this section, we describe the research design of our survey. Surveys have become more common recently in the financial economics literature. Accordingly, we reviewed many of the existing surveys including those targeting CFOs of nonfinancial firms, limited partners of PE firms, and PE fund managers, respectively, ([Graham and Harvey, 2001](#); [Da Rin and Phalippou, 2017](#); [Gompers et al., 2016a](#); [Gorman and Sahlman, 1989](#)).

This paper is closest in spirit to the survey of private equity (PE) fund managers by [Gompers et al. \(2016a\)](#). Many questions about investment decisions, valuation, deal structure, fund operations, and the relationship between general partners and limited partners are broadly similar in the two industries. Where possible, we use similar questions so that we can compare the responses of VCs to those of PE managers. The PE industry, however, focuses largely on mature or growth-stage companies, for which financial data and forecasts are generally available. The VC industry targets companies at an earlier stage of development, many of which have large technological and operational risks. These differences mean that some questions, particularly those about portfolio company capital structure, are important for PE investors but not applicable to VCs.

After developing a draft survey, we circulated it among academics and VCs for comments. We asked four VCs to complete the draft survey and provide feedback. We also sought the advice of sociology and marketing research experts on the survey design and execution. As a result of these efforts, we made changes to the format, style, and language of the survey questions. We then asked a further eight VCs to take our updated survey and provide further comments. This yielded a smaller round of modifications, primarily language changes to avoid ambiguity, which gave us the final version of the survey. The final version of the survey is available as an Internet Appendix here https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=2801385.

We designed the survey in Qualtrics and solicited all survey respondents via e-mail. We composed our mailing list from several sources. First, we used alumni databases from the Chicago Booth School of Business, Harvard Business School, and the Stanford Graduate School of Business. The MBA graduates of these schools constitute a disproportionate number of active VCs. A study by Pitchbook identified those schools as three of the top four MBA programs supplying VCs, with more than 40% of all VCs holding an MBA from one of the three schools.² We identified

alumni related to VC and manually matched them to VentureSource, a database of VC transactions maintained by Dow Jones. We ended up with 63, 871, and 540 individuals from Chicago, Harvard, and Stanford business schools, respectively. Second, we used data from the Kauffman Fellowship programs for their VC alumni. After excluding the alumni of the three business schools, we were left with a sample of 176 people. Third, the National Venture Capital Association (NVCA) gave us a list of their individual members, yielding an additional 2679 individuals. Finally, we manually gathered contact information of VCs in the VentureSource database. After again excluding the people we previously contacted, we arrived at a sample of 13,448 individuals. We believe our survey encompassed the overwhelming majority of individuals that are active VCs in the US as well as a large number of non-US VCs.

Our sample construction raises a number of issues that we attempted to address in the survey design. One is that some of the people we e-mailed may not be VCs. Our first criterion for deciding whether an individual is a venture capitalist was his or her identification as such either by the organizations that provided us their information or by VentureSource. We e-mailed only people that we positively identified as VCs. For example, we only e-mailed Stanford Graduate School of Business alumni who were listed as VCs by Stanford or were listed in VentureSource.

As a further filter, at the start of the survey, we asked respondents whether they worked at an institutional VC fund, a corporate VC vehicle, or neither. Supporting the notion that our initial screen worked well, 94% of our respondents identified as working at either a corporate VC vehicle or an institutional VC fund. The remainder were angel investors or worked at PE funds or family offices. For our analyses, we exclude any respondent who did not identify as working at an institutional VC fund. While the identification is self-reported, in conjunction with other questions in the survey that are specific to the VC industry, we are confident that our final survey respondents are active in the VC industry. We also acknowledge that there may be a gray area that separates late-stage growth-equity VC funds and some PE funds. We do not believe that this distinction in any way affects our analyses.

A second potential issue is that our population of VCs may not be representative of the broader industry. While this is possible, it is important to note that our sample represents a large fraction of all VCs. Our respondents come from VC firms accounting for 63% of US assets under management, according to VentureSource data. Furthermore, VCs from 76% of the top 50 and nine of the top ten VC firms (ranked by number of investments in VentureSource) completed our survey. (Ranking by number of IPOs produces similar results.) At worst, then, we can say that our results represent the practices of a large fraction of the industry.

There are two factors that may bias our sample toward more successful VCs. First, a disproportionate part of our sample comes from the graduates of top MBA programs and the Kauffman Fellows. Because of our connections, we explicitly targeted Chicago, Harvard, and Stanford MBAs and Kauffman Fellows. We received very high response rates from those groups. Given that these are top

² See <http://pitchbook.com/news/articles/harvard-4-other-schools-make-up-most-mbas-at-pe-vc-firms>.

Table 1

Number of VC firm respondents.

Count of the individual survey respondents and the VC firms that they belong to. The first panel looks at all surveys, the second panel looks at our main sample of respondents at institutional VC funds. A firm is counted in a category if at least one respondent at that firm is in that category.

	Respondents		Firms	
	N	%	N	%
Total responses	1110	100	860	100
Respondents at institutional VC firms	885	80	681	79
Respondents in corporate VC	141	13	120	14
Respondents at other investors	84	8	82	10
Sample: Respondents at institutional VC funds				
Total responses	885	100	681	100
Completed surveys	565	64	470	69
Surveys completed on behalf of someone else	11	1	11	2
Respondent is a partner	667	75	552	81
Matched to VentureSource	789	89	589	86

MBA programs and the Kauffman Fellows program is extremely selective, these alumni are potentially more successful than average VCs.³ Second, we include only the VCs who respond to the survey. It seems plausible that poorly performing or failed VCs would be less likely to fill out the survey. To the extent that we want to learn about best practices in the VC industry, a positive selection bias would strengthen our results.

We administered the survey between November 2015 and March 2016 in several waves using the Qualtrics website. To encourage responses, we sent the survey requests to the alumni from those of us on the faculty of their respective schools. To encourage completion, we offered those who completed the survey an early look at the results—after the survey was closed but before the results were released to the public. The survey is fully confidential and all the reported results are based on the aggregation of many responses to exclude the possibility of inferring any specific respondent's answers. However, the survey was not anonymous and we matched the survey respondents with VentureSource and other data sources.

Our final response rates are 37%, 19%, 24%, 35%, 7%, and 4%, respectively, from the Chicago, Harvard, Stanford, Kauffman, NVCA, and VentureSource samples. Not surprisingly, we had a large response rate from the schools and organization (Kauffman) with which we are connected. Our response rate from the schools is substantially larger than the rate reported in a number of other surveys of similar nature. While the response rate from VentureSource is low, we do not know to what extent the contact info given in VentureSource is current and how many of these investors are VCs. Many individuals in this sample are also outside the US, where our English-language reach and familiarity recognition would be lower.

Our survey has up to 71 questions (depending on the survey path chosen) and testing showed it took 25–35 min to complete. Actual time spent by respondents matched our tests: the median time for completion was 24 min, with the 25th and 75th percentiles being 13 and 58 min.

This suggests that most survey respondents took the survey seriously and devoted reasonable effort towards it. Although we had relatively low explicit incentives for completing the entire survey, we enjoyed high completion rates (57–78%) from our alumni groups. Completion rates among the NVCA and the VentureSource samples were slightly lower (42–56%); however, those that did complete the survey spent as much time on the survey as our other samples.

After doing the survey and writing an earlier draft of the paper, at the request of the referee, we interviewed 29 VCs. We asked them more detailed questions regarding deal flow, deal selection, valuation, and exit. These interviews are meant to provide clarification and more richness on these topics and, potentially, to provide some direction for future research. We discuss the consensus answers from these interviews in the relevant sections of the text.

2.2. Summary statistics

In this section, we provide summary statistics of the sample and introduce the subsamples that we use in our analyses. We received 1110 individual responses overall. Table 1 describes how we filter the responses. We exclude the 225 respondents (20%) who did not self-report they were institutional VCs.⁴ These investors are corporate VCs, PE investors, or angel investors; we exclude them in order to focus on institutional VC investors. The second part of Table 1 reports the composition of the final sample of 885 institutional VC respondents. We use all answers from our 885 institutional VC respondents, with 565 (64%) of those respondents finishing the survey. Only 11 (1%) respondents in this sample indicated they completed the survey on behalf of someone else.

In a number of cases, we received multiple responses from different individuals at the same VC firm and so we have only 681 VC firms for our 885 respondents. For VC

³ Gompers et al. (2016b) show that VCs who are graduates from top colleges and top MBA schools perform better.

⁴ Institutional VC firms are independent partnerships that manage VC funds on behalf of investors. VCs who manage funds are traditionally called general partners (GPs) and their investors—limited partners (LPs).

Table 2

Statistics on VC firm respondents.

A number of statistics on our sample of the VC survey respondents. For each measure, we report the number of firms we have that measure for and the across-firm averages, quartiles, and standard deviations. The symbol ^{vs} denotes data from Dow Jones VentureSource.

	N	Mean	Pct 25	Median	Pct 75	Std dev
Fund characteristics						
Fund size (\$m)	557	286	58	120	286	775
Fund size (\$m) ^{vs}	471	370	34	100	253	1335
Vintage year	547	2012	2011	2014	2015	4
Vintage year ^{vs}	477	2010	2008	2012	2014	5
Firm characteristics						
Year founded ^{vs}	508	1998	1994	2000	2005	10
Number of partners	602	4.8	3.0	4.0	5.0	6.1
Number of investments ^{vs}	484	169	28	73	196	261
Average round size (\$m) ^{vs}	467	33	6	11	19	178
% of exited investments IPO ^{vs}	482	12	0	8	20	14
% of investments exited ^{vs}	484	71	58	77	89	22
% US deals ^{vs}	484	66	17	91	100	41
Intend to raise another fund	436	84	100	100	100	36
Previous fund decile	280	7.8	7.0	8.0	9.0	1.9
Previous fund vintage year	329	2007	2005	2008	2011	5

firms where we had more than one respondent, we averaged the responses of the individual VCs to get a firm-level response.

We were able to match 89% of the firms to VentureSource. As mentioned above, our sample includes 38 of the top 50 and nine of the top ten VC firms (ranked by number of investments) in Venture Source. This is consistent with the possibility, noted earlier, that our sample is biased towards more successful firms.

Our first questions concerned the VC firm's investment focus. We asked respondents whether their firms specialized in a specific stage of company, industry, or geography. If respondents answered yes to any of these possibilities, they were asked follow-up questions on specific specialization strategies. For example, participants who indicated that their funds targeted companies at specific stages were asked a follow-up question on which stages they specialized on (seed, early, mid, late). Firms can specialize along multiple dimensions at the same time. Among our sample of institutional VC firms, 62% specialize in a particular stage, 61% in a particular industry, and 50% in a particular geography.

Of those specializing in a particular stage, 245 (36%) firms indicated that they invest only in seed- or early-stage companies ("Early" subsample), while 96 (14%) indicated that they invest only in mid- or late-stage companies ("Late" subsample). Given that stage of development should play a large role in the decision-making process of VC firms, our subsequent analysis breaks out these two subsamples and compares their survey responses.

While VC firms invest in a variety of industries, two industries stood out in the survey. 135 (20%) VC firms specialize in what can be broadly defined as the IT industry, including Software, IT, and Consumer Internet ("IT" subsample). 88 (13%) VC firms specialize in healthcare ("Health" subsample). To capture any important distinctions that exist between these two industries, these subsamples include VC firms that specialize *only* in these industries. If we include firms that list IT as one of their in-

dustries of investment, the fraction increases from 20% to 41%. For healthcare, the fraction goes up from 13% to 31%. Most VC firms invested in three or more industries, and a full 39% were generalists without an industry focus.

Respondents were less likely to identify a specific geographic focus. For example, only 12% of VC firms indicated that they focus on California. The geographical expansion and globalization of the VC industry is a relatively recent phenomenon and our results suggest that most VC firms reach a number of geographical markets at the same time. [Chen et al. \(2010\)](#) show that VCs tended to open up new offices in the late 1990s and 2000s. [Bengtsson and Ravid \(2015\)](#) find that California-based VCs write more entrepreneur-friendly contracts.

To explore whether geography matters, we took where the venture capitalist lived from their LinkedIn profile. If that was not available, we used the location of VC's firm headquarters. Out of our sample, 28% of VCs are based in California ("CA" subsample); 40% in other US locations, mostly in the Eastern US ("OthUS" subsample); and 37% outside of the US ("Foreign" subsample). These splits allow us to compare California and non-California firms in the US as well as US and non-US firms.

[Table 2](#) provides descriptive statistics on the sample of institutional VC firms represented by our survey respondents. The variable *Fund size* measures the capital under management of the current fund of each VC firm. The average fund size is \$286 million while the median is \$120 million (as reported by the respondents). The self-reported figures are similar to the average of \$370 million and median of \$100 million for the matched VentureSource sample. Median size is substantially smaller than average size, because several VC firms run very large funds. It is possible that fund size influences venture capitalist investing and decision-making. Accordingly, we divide the sample into two subsamples—VC firms with fund sizes below ("Small" subsample) and above the median ("Large" subsample).

The median VC firm in our sample was founded in 2000, invested in 73 deals over its history, and raised its

Table 3

Sources of investments.

The percentage of deals closed in the past 12 months originating from each source, as reported by our VC survey respondents. Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	Stage			Industry		IPO rate		Fund size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Inbound from management	10 (1)	12* (1)	7* (2)	10 (1)	13 (2)	11 (2)	10 (1)	10 (1)	10 (1)	10 (2)	9 (1)	11 (2)
Referred by portfolio company	8 (1)	9** (1)	4** (1)	10 (2)	6 (2)	6 (1)	8 (1)	7 (1)	8 (1)	7 (1)	7 (1)	10* (1)
Referred by other investors	20 (1)	22 (2)	17 (3)	21 (2)	18 (3)	21 (2)	20 (2)	18 (2)	21 (2)	18 (2)	22 (2)	18 (2)
Professional network	31 (1)	31 (2)	25 (3)	27 (3)	29 (4)	30 (3)	33 (3)	31 (2)	31 (2)	33 (3)	30 (2)	29 (2)
Proactively self-generated	28 (1)	23*** (2)	42*** (4)	28 (3)	30 (3)	29 (3)	28 (3)	30 (2)	27 (2)	27 (2)	28 (2)	29 (2)
Quantitative sourcing	2 (0)	1 (1)	3 (1)	3 (1)	2 (1)	3* (1)	1* (1)	2 (1)	2 (1)	2 (1)	2 (1)	2 (1)
Number of responses	446	202	72	107	68	114	122	200	246	123	179	160

most recent fund in 2012 as a follow-on to a 2008 vintage fund. The average number of deals is considerably larger at 169, indicating that some VC firms make a disproportionate number of investments. The median average round size is \$11 million. Consistent with VC firms being relatively small organizations, the average VC firm has four investing GPs; the 25th and 75th percentiles having three and five GPs, respectively. The majority of the responding firms are US-based and make investments primarily in the US.

Our sample contains both very successful and less successful VC firms. Our median VC reports that his or her previous fund was in the top quartile. This would be consistent with a positive selection bias in our sample. Alternatively, the VCs may be overstating their own performance. As reported performance may be unreliable, we use VentureSource data on IPOs to provide an objective split on performance. We take firms with at least ten exits in the past ten years in VentureSource and split those firms based on whether they have more than the median IPO rate ("High IPO" subsample) or less ("Low IPO" subsample).

The bulk of our respondents are active decision makers within their firms. Most, 82%, are partners, including Managing Partners, General Partners, and Partners. Partners are generally senior positions with influence on all aspects of investing including investment decisions. Managing Partners are typically a firm's most senior partners who coordinate operations and manage the firm's non-investment business. Managing Directors can be either General Partners or junior Partners, while Principals and Associates typically have more junior status. Finally, Venture Partners are typically not employees of VC firms, but either play the role of advisers or participate in the VC firm activities on a deal by deal basis.

3. Pre-investment

3.1. Deal sourcing

Deal sourcing, the ability to generate a pipeline of high-quality investment opportunities (or proprietary deal flow),

is considered an important determinant of success in the VC industry. [Sørensen \(2007\)](#) uses a two-sided matching algorithm to argue that deal sourcing and selection are more important drivers of returns (60%) than VC value-added (40%). He is not able to distinguish between sourcing and selection. [Sahlman \(1990\)](#) also emphasizes the importance of having a wide funnel to find promising investments. We, therefore, asked VCs to identify how they source their investments.

Table 3 reports that most VC deal flow comes from the VCs' networks in some form or another. Over 30% are generated through professional networks. Another 20% are referred by other investors and 8% from a portfolio company. Almost 30% are proactively self-generated. Only 10% come inbound from company management. Few VC investments, therefore, come from entrepreneurs who beat a path to the VC's door without any connection. Finally, a recent trend in the VC industry is so-called quantitative sourcing, where VCs quantitatively analyze data from multiple sources to identify opportunities likely to have high returns, and seek out investment positions in those firms. Few VC firms in our sample use this method.

This table and all following tables report averages and their standard errors (in parentheses). Most tables report means and test differences between subsamples using a two-sample, equal variance *t*-test.⁵ IT firms are compared to Health firms; Early to Late; High IPO to Low IPO rate; CA to OthUS; and Fgn to all other. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. For some highly skewed variables, we report medians and test using bootstrapped standard errors to get better power. The Online Appendix gives the correlation between membership in the different subsamples.

There is some variation across stage. Later-stage investors are more likely to generate investment opportuni-

⁵ We use a *t*-test for all variables rather than using a binomial test for categorical variables. In practice, there is no difference between the two for our sample sizes.

Table 4

Potential Investments that reach each stage of the deal funnel per closed deal.

The average number of deals that reach each stage of the deal funnel for every closed deal, as reported by our VC survey respondents. Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	Stage			Industry		IPO rate		Fund size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Considered per close	101 (7)	119 (14)	94 (17)	151** (22)	78** (10)	123 (15)	107 (13)	111 (11)	96 (9)	115 (15)	87 (9)	110 (12)
Met management	28 (3)	34 (7)	24 (3)	50* (13)	20* (3)	45* (11)	23* (2)	37** (6)	21** (2)	46*** (10)	22*** (2)	23 (2)
Reviewed with partners	10 (1)	11 (3)	10 (2)	13 (5)	11 (3)	15* (4)	8* (1)	11 (1)	10 (2)	10 (1)	12 (3)	8 (1)
Exercised due diligence	4.8 (0.3)	4.6 (0.4)	4.4 (0.4)	5.3 (0.6)	5.3 (0.6)	6.3*** (0.7)	4.1*** (0.4)	5.3* (0.4)	4.4* (0.4)	5.2 (0.3)	5.4 (0.5)	3.7*** (0.4)
Offered term sheet	1.7 (0.1)	1.5*** (0.0)	2.3*** (0.2)	1.6 (0.1)	1.6 (0.1)	1.8 (0.1)	1.7 (0.1)	1.7 (0.1)	1.7 (0.1)	1.7 (0.1)	1.8 (0.1)	1.6 (0.1)
Number of responses	442	195	76	106	64	117	119	205	238	125	180	155

ties themselves compared to early-stage investors. Early-stage investors are more likely to invest in deals that are inbound from management or are referred by their other portfolio companies. At the same time, there is little difference between the pipeline sources of high and low IPO subsamples, suggesting that the type of the sources is less important than sometimes claimed. It may also be the case that the critical differentiating factor for the high IPO firms is the quality of their referral network.

To sort through investment opportunities, VCs use a multi-stage selection process that is known as the deal funnel. When a member of the VC firm generates a potential deal, the opportunity is first considered by the individual originator (who could be a senior partner, a junior partner, an associate, or an affiliated member such as a venture partner). If the investment shows potential, a VC firm member meets the management of the potential portfolio company at least once. If the VC firm member continues to be impressed with the potential investment, he or she brings the company to other members of the VC firm for the review. Potential investments are then scrutinized and evaluated by the other partners at the VC firm. After this, the other partners at the VC firm start a more formal process of due diligence (e.g., calling more references, conducting industry analysis, and peer comparison). If the company passes the due diligence process, the VC firm presents a term sheet that summarizes the VC's conditions for a financing. Finally, if the company agrees to the term sheet, legal documents are drafted, a letter of commitment is signed, and the deal closes.⁶

While the sequence and the structure of the process outlined above is fairly well known, little is known about the relative proportion of opportunities that make it to any one particular stage of the deal funnel. Table 4 provides a breakdown of the deal funnel process. The median firm closes about four deals per year. For each deal

in which a VC firm eventually invests or closes, the firm considers roughly 100 potential opportunities. At each subsequent stage a substantial number of opportunities are eliminated. One in four opportunities lead to meeting the management; one-third of those are reviewed at a partners meeting. Roughly half of those opportunities reviewed at a partners meeting proceed onward to the due diligence stage. Conditional on reaching the due diligence stage, startups are offered a term sheet in about a third of cases. Offering a term sheet does not always result in a closed deal, as other VC firms can offer competing term sheets at the same time. Similarly, legal documentation and representations/warranties may cause deals to fall apart between agreeing to a term sheet and the deal closing. The fact that VC firms on average offer 1.7 term sheets for each deal that they close, a close rate of roughly 60%, suggests that a meaningful number of opportunities that ultimately receive funding are not proprietary.

Late-stage VC firms offer 50% more term sheets per closed deal than early-stage firms, suggesting more proprietary deal flow for early-stage deals and greater competition for late-stage deals. This is consistent with early-stage opportunities requiring greater understanding of the technology and development timelines as well as with late-stage opportunities having longer track records and being easier to evaluate.

Large VC firms and more successful VC firms have more meetings with management and initiate due diligence on more firms per closed deal than their smaller or less successful peers. This is consistent with larger VC firms employing more junior partners in sourcing and evaluating deals.

The IT and Health subsamples also show substantial differences in deal funnel. While an IT VC firm considers 151 deals for each investment made, a healthcare VC firm considers only 78. These differences persist through the first part of the funnel, with IT firms meeting the management of twice as many companies, although after that stage, the funnel narrows with both types of VC firms. This is consistent with larger fixed costs of evaluating investments in the healthcare industry. It may also reflect the smaller

⁶ Depending upon the VC market cycle, some stages of the deal funnel may not be utilized. For example, VC firms occasionally provide "pre-emptive" term sheets even before formal due diligence, in an attempt to lock-up a deal.

universe of potential healthcare entrepreneurs given the specific domain expertise and regulatory knowledge in the sector.

3.2. Investment selection

Our results show that VCs start with a pipeline of hundreds of potential opportunities and narrow those down to make a very small number of investments. In this section, we examine the factors in their deal selection process. Kaplan and Strömberg (2004) examine venture capitalist investment memoranda that describe the investment theses and risks of their investments. They find that VCs focus on the quality of the management team, the market or industry, the competition, the product or technology, and the business model in their investment decisions. However, investment memoranda do not rank the importance of the different criteria.

Previous empirical and anecdotal evidence suggests that VCs have different views on how to select investments. Some focus more heavily on the management team (the jockey) while others focus more heavily on the business (the horse): the product, technology, and business model. Kaplan et al. (2009) examine the IPO prospectuses of successful VC-backed companies and find that the horse (product, technology, or business model) is more stable in these companies than the jockey (i.e., the management team). On the other hand, in a randomized field experiment with angel investors, Bernstein et al. (2017) find that the average investor responds more strongly to information about the founding team than to firm traction.

Accordingly, we asked the respondents to identify the factors that drive their selection decisions and then rank them according to their importance. The top panel of Table 5 reports the percentage of respondents who mentioned each factor as important. The bottom panel reports the percentage of respondents who ranked each factor as the most important.

Table 5 shows that the VCs ranked the management team (or jockey) as the most important factor. The management team was mentioned most frequently both as an important factor (by 95% of the VC firms) and as the most important factor (by 47% of the VCs). Business (or horse) related factors were also frequently mentioned as important with business model at 83%, product at 74%, market at 68%, and industry at 31%. The business-related factors, however, were rated as most important by only 37% of the firms. Fit with the fund was of some importance. Roughly one-half of the VCs mentioned it as important and 14% mentioned it as the most important. Valuation and VCs' ability to add value were each mentioned by roughly one-half of the VCs, but were viewed as most important by fewer than 3% overall.

There is meaningful cross-sectional variation. The team is relatively more important for early-stage investors than for late-stage investors. In fact, business factors are more important for late-stage investors than team. This is consistent with investors facing greater uncertainty about the business early stage and focusing more on the team.

Business-related factors also are more important for healthcare investors relative to IT investors. Indeed, 55%

of the Health subsample chooses business-related factors as most important versus only 32% for the team. This is consistent with intellectual property and non-human capital assets as being more important for health-related businesses.

Comparing our results to those of Gompers et al. (2016a), late-stage funds are more similar to private equity funds in that they see business factors and valuation as highly important. Larger funds and more successful firms care more about valuation. This valuation result is arguably consistent with Hsu (2004) who shows that high-quality VC firms are able to win deals despite submitting term sheets at a lower valuation.

Table 5 indicates that, overall, the management team is the most important factor VCs consider in choosing portfolio company investments. Not shown there, we asked about the qualities that VCs view as important in a management team. Ability is the most mentioned factor, with more than two-thirds of VCs claiming it is important. Industry experience is the second most mentioned factor, with passion, entrepreneurial experience, and teamwork filling out the ranking. While we did not define passion, we interpret passion as a combination of execution and vision.

California VC firms are more likely to say passion is important and less likely to say experience is important. Healthcare VCs, again, differ from other VCs in placing industry experience as by far the most important quality and ranking passion as substantially less important.

We ask several additional questions about the deal selection process. Table 6 tabulates these results. VCs devote substantial resources to conducting due diligence on (i.e., investigating) their investments. The average deal takes 83 days to close; the average firm spends 118 hours on due diligence over that period and the average firm calls ten references. The deal period and time on due diligence are shorter for early-stage, IT, and California firms; and longer for late-stage, healthcare, and non-California firms. Late-stage firms also call more references (13 on average) than early-stage firms (eight).

To better understand deal selection, we asked several questions in our subsequent interviews with VCs. First, we asked them how they thought about investment sectors and whether they proactively identified attractive sectors. There was not a consensus on this question. Some VCs said they looked for hot sectors in which to invest because they believe that is what their LPs pay them to do. Others said that they tried to be contrarian and avoid sectors that were hot. A third group said that they invested in the best deals regardless of how hot the sector was.

Second, and related to this, we asked for more detail on the question of jockey versus horse. In particular, we asked whether they spent more effort cultivating and selecting particular startups or particular entrepreneurs. Consistent with the finding that the team is very important, many of the VCs cultivated entrepreneurs, often ones they had worked with in previous investments. At the same time, and consistent with the importance of the business, many of the VCs said they looked for strong products and businesses as well as a strong team.

Finally, we asked how much their investment decisions were influenced by external capital market cycles. By and

Table 5

Important factors for investment selection.

The percentage of our VC survey respondents who report each attribute as important (top) and as the most important (bottom) when deciding whether to invest. Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	All	Stage		Industry		IPO rate		Fund size		Location		
		Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Important factor												
Team	95 (1)	96 (1)	93 (3)	96 (2)	91 (3)	96 (2)	96 (1)	96 (1)	95 (1)	97 (1)	93 (2)	96 (1)
Business model	83 (2)	84 (2)	86 (4)	85* (3)	75* (4)	79 (3)	82 (3)	83 (2)	82 (2)	83 (3)	84 (2)	81 (3)
Product	74 (2)	81*** (2)	60*** (5)	75 (4)	81 (4)	75 (3)	74 (3)	71* (3)	77* (2)	81** (3)	71** (3)	73 (3)
Market	68 (2)	74 (3)	69 (5)	80*** (3)	56*** (5)	68 (4)	74 (3)	67 (3)	70 (3)	76** (3)	66** (3)	64 (3)
Industry	31 (2)	30 (3)	37 (5)	33** (4)	19** (4)	25 (3)	29 (3)	30 (3)	31 (3)	31 (3)	37 (3)	24*** (3)
Valuation	56 (2)	47*** (3)	74*** (5)	54* (4)	42* (5)	59* (4)	49* (4)	59* (4)	52* (3)	63 (4)	60 (3)	46*** (3)
Ability to add value	46 (2)	44 (3)	54 (5)	41 (4)	45 (5)	39* (4)	48* (4)	41** (3)	51** (3)	46 (4)	48 (3)	46 (3)
Fit	50 (2)	48 (3)	54 (5)	49 (4)	40 (5)	38** (4)	50** (4)	46** (3)	54** (3)	48 (4)	51 (3)	50 (3)
Most important factor												
Team	47 (2)	53** (3)	39** (5)	50*** (4)	32*** (5)	44 (4)	51 (4)	44 (3)	50 (3)	42 (4)	44 (3)	55*** (3)
Business model	10 (1)	7*** (2)	19*** (4)	10 (3)	6 (3)	7 (2)	11 (2)	10 (2)	10 (2)	11 (2)	11 (2)	8 (2)
Product	13 (1)	12 (2)	8 (3)	12*** (3)	34*** (5)	18* (3)	11* (2)	15* (2)	10* (2)	13 (2)	14 (2)	11 (2)
Market	8 (1)	7 (2)	11 (3)	13* (3)	6* (3)	11 (2)	10 (2)	11*** (2)	5*** (1)	15*** (3)	5*** (1)	5 (2)
Industry	6 (1)	6 (1)	4 (2)	3* (2)	9* (3)	6 (2)	3 (1)	7* (2)	4* (1)	7 (2)	7 (2)	2** (1)
Valuation	1 (0)	0*** (0)	3*** (2)	0* (0)	2* (2)	3 (1)	1 (1)	2 (1)	1 (1)	2 (1)	1 (1)	1 (1)
Ability to add value	2 (1)	2 (1)	2 (2)	1 (1)	1 (1)	2 (1)	2 (1)	1 (1)	2 (1)	1 (1)	2 (1)	2 (1)
Fit	14 (1)	13 (2)	13 (4)	9 (2)	9 (3)	9 (2)	12 (2)	10** (2)	17** (2)	10* (2)	16* (2)	15 (2)
Number of responses	558	241	90	129	86	138	156	251	310	161	218	199

Table 6

Investment process questions.

This table summarizes the average responses to a number of questions on VC firm's investment process, as given by our VC survey respondents. Separate averages are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	All	Stage		Industry		IPO rate		Fund size		Location		
		Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Days to close deal	83 (3)	73*** (3)	106*** (14)	59*** (3)	98*** (5)	83 (8)	83 (4)	80 (5)	86 (3)	65** (8)	83** (3)	96*** (4)
Number of responses	523	223	83	120	84	133	142	231	294	144	206	192
Hours on due diligence	118 (9)	81*** (6)	184*** (39)	76*** (7)	120*** (10)	101 (10)	121 (23)	125 (16)	111 (9)	81** (8)	129** (17)	132 (14)
Number of responses	433	194	68	95	72	116	115	201	232	127	178	144
References called	10 (0)	8*** (0)	13*** (1)	10 (1)	11 (1)	12 (1)	11 (1)	12*** (1)	9*** (0)	11 (1)	11 (1)	9** (1)
Number of responses	439	195	70	100	71	117	116	204	235	126	180	150

Table 7

Financial metrics used to analyze investments.

The percentage of our VC survey respondents who use each financial metric to analyze investments as well as the average required IRR and MOIC these respondents report using. Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	All	Stage		Industry		IPO rate		Fund size		Location		
		Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
None	9 (1)	17*** (2)	1*** (1)	13 (3)	7 (3)	10 (2)	12 (2)	9 (2)	10 (2)	11 (2)	8 (2)	10 (2)
Multiple of invested capital	63 (2)	56*** (3)	71*** (5)	57** (4)	72** (5)	72* (3)	63* (4)	65 (3)	61 (3)	66 (4)	66 (3)	58** (3)
IRR	42 (2)	26*** (3)	60*** (5)	33 (4)	42 (5)	35 (4)	36 (4)	40 (3)	42 (3)	31*** (4)	49*** (3)	42 (3)
NPV	22 (2)	12** (2)	21** (4)	16** (3)	29** (5)	19 (3)	16 (3)	24 (3)	21 (2)	16 (3)	20 (3)	29*** (3)
Other	8 (1)	9 (2)	4 (2)	7 (2)	10 (3)	8 (2)	8 (2)	8 (2)	7 (1)	9 (2)	6 (2)	9 (2)
Number of metrics	2.1 (0.0)	1.8*** (0.1)	2.4*** (0.1)	2.0 (0.1)	2.0 (0.1)	2.0 (0.1)	2.0 (0.1)	2.1 (0.1)	2.0 (0.1)	2.0 (0.1)	2.1 (0.1)	2.1 (0.1)
Number of responses	546	238	90	130	88	136	152	243	306	156	217	195
Often make gut investment decisions	44 (2)	48* (3)	37* (5)	45* (4)	34* (5)	42 (4)	43 (4)	40* (3)	47* (3)	41 (4)	41 (3)	49** (3)
Number of responses	563	243	91	132	88	140	158	251	315	162	221	202
Quantitatively analyze past investments	11 (1)	12 (2)	8 (3)	11 (3)	16 (4)	15 (3)	11 (3)	11 (2)	11 (2)	12 (3)	9 (2)	13 (3)
Number of responses	488	213	82	115	76	127	138	228	263	140	199	169
Average required IRR	31 (1)	33* (2)	29* (1)	34 (2)	33 (2)	30 (2)	30 (2)	28*** (1)	33*** (1)	31 (2)	30 (1)	31 (1)
Number of responses	216	58	49	41	35	48	52	99	114	48	93	79
Average required MOIC	5.5 (0.3)	7.5*** (0.8)	3.2*** (0.1)	7.0 (1.3)	4.9 (0.3)	6.2 (0.9)	5.4 (0.3)	4.9** (0.2)	6.2** (0.6)	6.7** (1.0)	4.8** (0.2)	5.5 (0.3)
Number of responses	346	127	63	73	61	104	96	165	179	103	141	114

large, the VCs said that those cycles had only a modest impact on their investment decisions.

3.3. Valuation

In making an investment, VCs, like any investor, have to value the company. In this section, we explore the tools and assumptions that VCs utilize in valuing the companies in which they invest. When possible, we compare their answers to those for CFOs in [Graham and Harvey \(2001\)](#) and for PE investors in [Gompers et al. \(2016a\)](#).

3.3.1. Valuation methods

Finance theory teaches that investment decisions should be made using a DCF or NPV analysis with a cost of capital based on the systematic risk of the opportunity. [Graham and Harvey \(2001\)](#) find that 75% of CFOs always or almost always use such analyses, using them as often as IRRs. [Gompers et al. \(2016a\)](#) find that private equity investors rely primarily on IRRs and MOICs to evaluate investments. They infrequently use NPV methods. We repeat the analyses in those two papers by asking our respondents a number of questions on the financial and valuation metrics they use.

First, we ask how important financial metrics such as IRR, MOIC, or NPV are in making investment decisions. The results in [Table 7](#) are different from those for CFOs and

more similar to those for private equity investors. Only 22% of the VC investors use NPV methods. The most popular methods are MOIC (63% of the sample) and IRR (42% of the sample). While this level of reliance on NPV would be considered low for mature firms, the response rate does go against anecdotal evidence that VCs rarely use NPV to evaluate investments. One possibility is that our sample has a substantial proportion of MBA graduates who were exposed to modern finance valuation methods in school.

At the same time, consistent with the anecdotal evidence, 9% of the VCs claim that they do not use any financial metrics. This is particularly true for early-stage investors, 17% of whom do not use any financial metrics. Furthermore, almost half of the VCs, particularly the early-stage, IT, and smaller VCs, admit to often making gut investment decisions. This more qualitative approach to investing is consistent with the paucity of historical operating information and large uncertainty of future cash flows that VCs likely face in early-stage investments. The setting is very different from the typical one taught in MBA finance curricula.

[Table 7](#) also reports the required IRRs and MOICs for those respondents who indicated they used them. The average required IRR is 31%, which is higher than the 20% to 25% IRR reported by private equity investors in [Gompers et al. \(2016a\)](#). Late-stage and larger VCs require lower IRRs

Table 8

Adjustments to required financial metrics.

The percentage of our VC survey respondents who report that their required financial metrics vary with each factor (top) and the percentage of respondents who adjust their required financial metric more for systematic risk than for idiosyncratic risk (bottom). Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	All	Stage		Industry		IPO rate		Fund size		Location		
		Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Types of adjustment made												
Same for all investments	23 (2)	26 (3)	30 (5)	27 (4)	21 (5)	23 (4)	22 (4)	19** (3)	27** (3)	24 (4)	22 (3)	23 (3)
Investment's riskiness	64 (2)	52*** (4)	69*** (5)	53** (5)	67** (5)	71 (4)	67 (4)	68* (3)	61* (3)	63 (4)	65 (3)	65 (3)
Financial market conditions	19 (2)	16 (3)	17 (4)	19 (4)	19 (4)	19 (3)	19 (3)	17 (2)	20 (2)	17 (3)	21 (3)	18 (3)
Industry conditions	26 (2)	26 (3)	19 (4)	21 (4)	25 (5)	24 (4)	23 (4)	25 (3)	27 (3)	23 (4)	28 (3)	26 (3)
Time to liquidity	56 (2)	57* (4)	46* (5)	49*** (5)	73*** (5)	58 (4)	57 (4)	59 (3)	54 (3)	56 (4)	60 (3)	52 (4)
Other	5 (1)	4 (1)	4 (2)	9** (3)	2** (1)	3* (1)	7* (2)	6 (1)	4 (1)	6 (2)	5 (1)	5 (2)
Adjustments for systematic risk												
Do not adjust for risk	36 (2)	48*** (4)	31*** (5)	47** (5)	33** (5)	29 (4)	33 (4)	32* (3)	39* (3)	37 (4)	35 (3)	35 (3)
Adjust, treat all risk the same	42 (2)	33*** (3)	50*** (5)	35 (4)	40 (5)	47 (4)	40 (4)	42 (3)	41 (3)	42 (4)	41 (3)	44 (4)
Adjust, discount systematic risk more	5 (1)	5 (2)	2 (2)	6 (2)	8 (3)	4 (2)	3 (2)	4 (1)	5 (1)	3 (1)	4 (1)	7 (2)
Adjust, discount idiosyncratic risk more	14 (1)	13 (2)	13 (4)	10 (3)	13 (4)	14 (3)	18 (3)	17* (2)	11* (2)	14 (3)	15 (3)	12 (2)
Other	4 (1)	2 (1)	4 (2)	3 (1)	6 (3)	7 (2)	6 (2)	5 (1)	4 (1)	4 (2)	5 (1)	3 (1)
Number of responses	490	192	89	109	78	123	131	224	267	136	195	178

of 28% to 29% while smaller and early-stage VCs have higher IRR requirements. The same pattern holds in MOICs, with an average multiple of 5.5 and a median of 5.0 required on average, with higher multiples for early-stage and small funds. The source of these differences is not entirely clear. Early-stage funds may demand higher IRRs due to higher risk of failure, i.e., they may calculate IRRs from “if successful” scenarios. Small funds potentially demand higher IRRs due to capital constraints or the fact that they invest in, on average, earlier stage deals.

We also asked about adjustments to required IRR or MOIC. Table 8 shows that 64% of VC firms adjust their target IRRs or MOICs for risk. This is a smaller fraction than the 85% reported by Gompers et al. (2016a) for private equity firms, but still the majority of VC firms make an adjustment for risk. The Late, Large, and Health subsamples are likely to adjust for risk, consistent with the notion that these samples use more technical methods in analyzing their investments. Roughly half of the VCs adjust for time to liquidity in making a decision. This may simply reflect that longer-term investments require a larger multiple because of the greater elapsed time at a given return. Alternatively, it may reflect the fact that VC funds have a limited lifetime (typically ten years with three years of automatic extensions). At the same time, 23% of VCs use the same metric for all investments, indicating that they do not make any adjustments for risk, time to liquidity, or industry conditions.

Adjusting IRRs or MOICs for risk is potentially consistent with the result in finance theory that an investment's discount rate should increase with the investment's systematic or market risk. However, the discount rate should not include idiosyncratic or non-market risk. Only 5% of VCs discount systematic risk. The majority (78%) either do not adjust for risk or treat all risk the same, with an additional 14% discounting idiosyncratic risk more.

Overall, VC firms as a class appear to adjust for risk in a way that is inconsistent with predictions and recommendations of finance theory. Not only do they adjust for idiosyncratic risk and neglect market risk, 23% of them use the same metric for all investments, even though it seems likely that different investments face different risks. Again, their practices are more similar to PE investors than to CFOs.

3.3.2. Forecasts

To use financial metrics such as IRR, MOIC, or DCF, investors need to forecast the underlying cash flows. Accordingly, we asked VCs whether they forecast company cash flows and if so for how long.

Table 9 reports that 20% of VC firms do not forecast company cash flows. The percentage is even higher at 31% for early-stage funds. The prevalence of non-forecasting is clearly not consistent with standard corporate finance theories and what is taught in corporate finance courses (although it is consistent with some VCs not using any finan-

Table 9

Forecasting period.

The percentage of our VC survey respondents who report forecasting portfolio company financials for each time period. Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	All	Stage		Industry		IPO rate		Fund size		Location		
		Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Do not forecast	20 (2)	31*** (3)	7*** (3)	22 (4)	29 (5)	19 (3)	17 (3)	17** (2)	24** (2)	24 (3)	20 (3)	18 (3)
1–2 years	11 (1)	14 (2)	8 (3)	20** (4)	8** (3)	12 (3)	12 (3)	9 (2)	11 (2)	12 (3)	9 (2)	12 (2)
3–4 years	40 (2)	38 (3)	39 (5)	41* (4)	28* (5)	38 (4)	43 (4)	44* (3)	36* (3)	38 (4)	36 (3)	44* (3)
5–6 years	27 (2)	16*** (2)	42*** (5)	16* (3)	27* (5)	28 (4)	25 (3)	27 (3)	27 (3)	24** (3)	34** (3)	21** (3)
7+ years	3 (1)	1** (1)	5** (2)	1*** (0)	8*** (3)	4 (1)	2 (1)	3 (1)	2 (1)	2 (1)	1 (1)	5** (2)
Average	3.1 (0.1)	2.4*** (0.1)	3.9*** (0.2)	2.5** (0.2)	3.2** (0.3)	3.2 (0.2)	3.0 (0.1)	3.2 (0.1)	2.9 (0.1)	2.8 (0.2)	3.1 (0.1)	3.2 (0.2)
Number of responses	530	225	90	123	82	131	146	237	295	149	211	191
% of companies which meet projections	28 (1)	26*** (1)	33*** (2)	28 (2)	28 (2)	28** (2)	23** (1)	31*** (1)	26*** (1)	28 (2)	27 (1)	29 (1)
Number of responses	493	214	82	115	77	126	129	228	264	141	195	176

cial metric). As with the risk adjustments (or lack thereof), the result is again consistent with substantial uncertainty and a lack of operating information making it difficult to precisely estimate value and leading investors to rely more on qualitative factors.

For funds that do forecast, Table 9 indicates the median forecast period is three to four years. This is a shorter period than the five-year forecast period used by virtually all private equity firms in Gompers et al. (2016a). The median and average are greater for late-stage suggesting that as uncertainty declines, VC investors behave more like PE investors.

We also ask about the extent to which portfolio companies meet their projections. VCs report that fewer than 30% of the companies meet projections. Consistent with greater uncertainty, early-stage VCs report their companies are less likely to meet projections (26%) than do late-stage VCs (33%). This also potentially provides an explanation for the higher IRR requirements for early-stage VCs—the higher IRR offsets greater (total) risk.

In the interviews, we asked the VCs several additional questions about their forecasts and investment decisions. Consistent with our survey, there was wide dispersion in how VCs thought about a company's revenue model and monetization strategies. Several VCs, particularly those who invested early-stage and in the Bay Area, did not build formal revenue models. They did, however, want to understand how the companies would ultimately monetize their product or service. Other VCs built detailed revenue and business models.

3.3.3. Valuation considerations

To better understand VC valuation, we asked the VCs which factors are important in deciding on the valuation they offer. Table 10 indicates that exit considerations are the most important factor, with 86% of respondents iden-

tifying it as important and 46% as the most important factor. Comparable company valuations rank second (with 80% rating it important and 29% most important) and desired ownership third (with 63% rating it important and 18% most important). The competitive pressure exerted by other investors is markedly less important (with 43% rating it important and only 3% most important), although IT VCs thought it more important than healthcare VCs firms, suggesting that the IT investing may be more competitive than healthcare investing. This interpretation also is consistent with the steeper term sheet competition in Table 4. Whether it is seen in the resulting payoff structure of both industries is an interesting question for future research.

Late-stage VC firms find exit considerations to be more important, likely because it is easier to predict by this stage of company development what shape the exit would take. Early-stage firms care more about desired ownership.

We also asked VCs whether they set valuations using investment amount and target ownership. The third panel of Table 10 shows that roughly half of investors use this simple decision rule. There is a large difference, however, between early-stage and late-stage investors. Early-stage VCs are more likely to set the valuation using investment amount and target ownership. This result is consistent with early-stage companies having little information and high uncertainty that leads VCs to simplify their valuation analysis. Late-stage VCs have more information and can potentially use more sophisticated methods to arrive at the implied valuation.

3.3.4. Unicorns

We included a set of questions regarding the valuations of so-called unicorns, companies with implied valuations above \$1 billion. The questions were motivated by concerns and publicity in the popular press about the over-

Table 10

Important factors for portfolio company valuation.

The percentage of our VC survey respondents who marked each factor as important (top) and as most important (middle) for setting valuation as well as the percentage of respondents who set valuation using investment size and target ownership and the target ownership stake of respondents (bottom). Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

		Stage		Industry		IPO rate		Fund size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Important factor												
Anticipated exit	86 (1)	81** (2)	91** (3)	80*** (3)	93*** (3)	90* (2)	83* (3)	87 (2)	84 (2)	85 (3)	85 (2)	87 (2)
Comparable companies	80 (2)	77 (3)	84 (4)	81 (3)	79 (4)	77 (3)	82 (3)	83 (2)	78 (2)	78 (3)	81 (3)	81 (3)
Competitive pressure	43 (2)	47 (3)	39 (5)	55*** (4)	27*** (5)	45 (4)	44 (4)	52*** (3)	37*** (3)	49 (4)	42 (3)	41 (3)
Desired ownership	63 (2)	75*** (3)	46*** (5)	70 (4)	67 (5)	59 (4)	62 (4)	62 (3)	65 (3)	65 (4)	62 (3)	63 (3)
Most important factor												
Anticipated exit	46 (2)	38*** (3)	58*** (5)	34** (4)	50** (5)	46 (4)	49 (4)	45 (3)	47 (3)	48 (4)	43 (3)	49 (3)
Comparable companies	29 (2)	30 (3)	31 (5)	35 (4)	29 (5)	28 (4)	24 (3)	31 (3)	27 (2)	25* (3)	33* (3)	26 (3)
Competitive pressure	3 (1)	2 (1)	2 (1)	2 (1)	1 (1)	5 (2)	3 (1)	4*** (1)	1*** (1)	5 (2)	3 (1)	1* (1)
Desired ownership	18 (2)	27*** (3)	5*** (2)	24 (4)	15 (4)	14 (3)	19 (3)	16 (2)	19 (2)	19 (3)	15 (2)	20 (3)
Number of responses	544	236	87	126	85	135	151	245	302	155	218	192
Set valuation using investment and ownership	49 (2)	63*** (3)	29*** (5)	59*** (4)	41*** (5)	47 (4)	53 (4)	48 (3)	50 (3)	55*** (4)	40*** (3)	54 (3)
Number of responses	544	237	89	129	87	135	150	243	304	156	216	194
Target ownership stake	23 (1)	20*** (1)	27*** (2)	21 (1)	23 (1)	22 (1)	23 (1)	25*** (1)	22*** (1)	21* (1)	23* (1)	25*** (1)
Number of responses	495	215	76	120	86	118	144	217	281	135	194	184

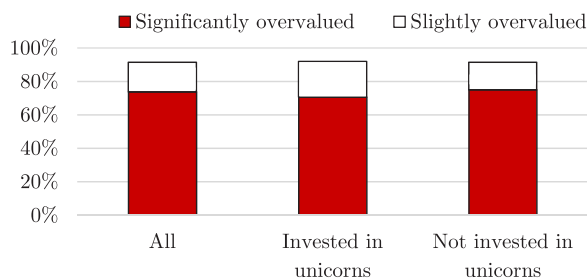


Fig. 1. Opinion on the valuations of unicorns. This table reports the percentage of the sample of VC survey respondents who think unicorns are either slightly or significantly overvalued. This percentage is calculated separately for unicorn investors and non-investors.

valuation of such companies. In fact, [Gornall and Strebu-laev \(2019\)](#) find evidence consistent with unicorn values being overstated. Accordingly, the questions also provide an opportunity to test whether the VCs answered the survey honestly.

[Fig. 1](#) shows the respondents' investment opinion on whether unicorns are overvalued. Just under 40% of our sample VCs claim to have invested in a unicorn. This suggests that a meaningful fraction of our sample has been able to invest in high profile, successful companies. The VCs in IT and with higher IPO rates are more likely to have done so.

Over 90% of our sample VCs believe that unicorns are overvalued—either slightly or significantly. There are no significant differences across our different subsamples. This indicates that VCs share the concerns in the popular press that some firms are overvalued. It also suggests a puzzle as to why investors continue to invest in such firms.

[Fig. 1](#) also indicates that there is no difference in perceived overvaluation between VCs who invested in unicorns and VCs who did not. This lack of a difference suggests that the VCs answered this question honestly. One might have expected investors in unicorns to have been more favorable about unicorn valuations than non-investors.

3.3.5. Reporting to limited partners

It is possible that VCs' decisions are influenced by the perceived preferences of their investors or LPs. Accordingly, we asked a set of questions concerning the interactions VCs have with their LPs similar to those in [Gompers et al. \(2016a\)](#). VCs believe that MOICs and IRRs (net of fees) are important benchmark metrics for most LPs, at 84% and 81%, respectively. These benchmarks are considered the most important benchmarks by, respectively, 52% and 32% of the VCs. While performance relative to VC funds (for 60%) and relative to the Standard & Poor's (S&P) 500 (for 23%) are important, they are considered most important

by fewer than 10% of the sample VCs. These results are present for all of the subsamples.

Accordingly, we conclude that the VCs strongly believe that LPs are primarily concerned with absolute rather than relative performance. These perceptions explain why VCs evaluate deals in the way they do. This finding is similar to the result in Gompers et al. (2016a) for private equity investors, but inconsistent with finance theory where LPs should allocate their money to funds according to their relative performance expectations. It is also inconsistent with the common practices in the mutual fund industry, in which relative performance is paramount.

VCs claim that their firms market a net IRR of about 24% to LPs, with a median of 20% for all subsamples. This IRR is similar to the IRR PE investors market to their LPs in Gompers et al. (2016a). Interestingly, this is not consistent with VC investments being riskier than private equity investments. At the same time, VC firms also market on average a 3.5 MOIC to their LPs, with early-stage VCs marketing more at 3.8 and late-stage VCs marketing less at 2.8. While these multiples are slightly higher than those for the private equity investors, the difference from private equity investments is likely explained by the longer duration of VC investments.

VCs are optimistic about their future performance. The vast majority (93%) of VCs expect to beat the public markets; 71% of VCs are similarly optimistic about the VC industry as a whole. While this may seem to be unreasonably optimistic, Harris et al. (2016) find that the average VC fund has performed at least as well as the S&P 500 for most vintages since 2004. This also is consistent with our having sampled VCs who have outperformed the industry in the past.

4. Deal structure

Valuation is one part of the negotiation process that takes place among new VC investors, existing investors, and founders. Another part is the sophisticated contract terms—cash flow, control, liquidation, and employment rights—that VCs negotiate in their investments. Kaplan and Strömberg (2003, 2004) describe these terms and examine the role that internal risk, external risk, and execution risk play in determining the contractual provisions seen in VC contracts. In this section, we survey the VCs about the terms they use and the negotiability of those terms.

To understand which of the terms might vary with deal characteristics, we asked the survey respondents to indicate the terms that they are more or less flexible with when negotiating new investments. Following Kaplan and Strömberg, we asked about terms related to cash flow rights (anti-dilution protection, dividends, investment amount, option pool, ownership stake, and valuation); control rights (board control, prorata rights), liquidation rights (liquidation preferences, participation rights, and redemption rights); and employment terms (vesting).

Anti-dilution protection gives the VC more shares if the company raises a future round at a lower price. An option pool is a set of shares set aside to compensate and incentivize employees. Prorata rights give investors the right to participate in the next round of funding. The liquidation

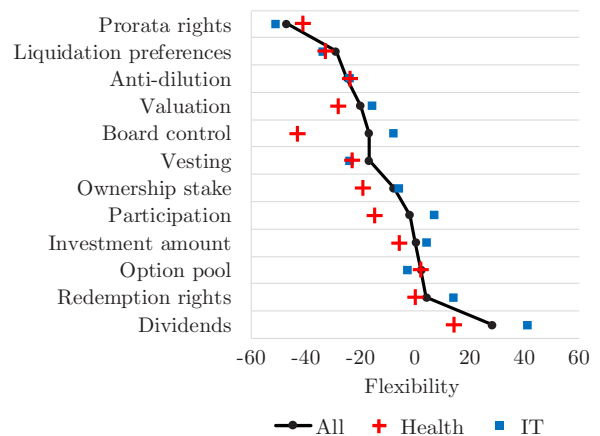


Fig. 2. Flexibility on contractual terms. This figure gives the average flexibility the VC survey respondents have when negotiating contractual features on a scale of –100 to 100 (not at all flexible and investor friendly is –100, not very flexible –50, somewhat flexible 0, very flexible 50, extremely flexible and founder friendly 100).

preference gives investors a seniority position in liquidation. Participation rights allow VC investors to combine upside and downside protection (so that VC investors first receive their downside protection and then share in the upside). Redemption rights give the investor the right to redeem their securities, or demand from the company the repayment of the original amount. Vesting refers to a partial forfeiture of shares by the founders or employees who leave the company.

For each term, we asked respondents to rate their flexibility on that term on a scale of not at all flexible, not very flexible, somewhat flexible, very flexible, and extremely flexible. We assigned a score to each choice, with –100 being investor friendly (Not at all flexible) and +100 being founder friendly (Extremely flexible). A value of zero means that on average survey respondents were somewhat flexible about the term.

Table 11 reports the results and Fig. 2 shows them graphically. Overall, the VCs are not overly flexible on their terms with most terms scoring between not very flexible and somewhat flexible. Only one term, dividends, scores appreciably above somewhat flexible (at +28). These results suggest that the terms are very important to the VCs and are consistent with the arguments in Kaplan and Strömberg (2003) and elsewhere that these provisions implement value increasing if not value maximizing contracts.

The least negotiable provisions for VC firms in descending order are prorata rights, liquidation preference, anti-dilution protection, valuation, board control, and vesting. The provisions on which VCs are most flexible (again, in descending order, the first being most flexible) are dividends, redemption rights, option pool, investment amount, and participation. In Kaplan and Strömberg (2004), liquidation preferences and board control are related to internal and external risk; anti-dilution protection is related only to internal risk; and redemption rights are related to external risk. We cautiously interpret these results as showing that

Table 11

Flexibility on contractual terms.

The flexibility our VC survey respondents have when negotiating each of the following contractual features on a new investment. The table gives the average flexibility reported on a scale of –100 to 100 (not at all flexible and investor friendly is –100, not very flexible –50, somewhat flexible 0, very flexible 50, extremely flexible and founder friendly 100). Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	Stage			Industry		IPO rate		Fund size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Prorata rights	–47 (2)	–49 (3)	–43 (4)	–51 (4)	–41 (5)	–51 (3)	–51 (3)	–50 (3)	–45 (3)	–47 (4)	–48 (3)	–45 (3)
Liquidation preferences	–29 (2)	–24 (4)	–34 (5)	–34 (4)	–33 (5)	–30 (4)	–28 (4)	–29 (3)	–28 (3)	–31 (4)	–28 (3)	–28 (4)
Anti-dilution	–25 (2)	–19 (3)	–29 (5)	–24 (5)	–24 (5)	–25 (4)	–22 (4)	–27 (3)	–23 (3)	–21 (4)	–26 (3)	–26 (4)
Valuation	–20 (1)	–17* (2)	–25* (4)	–16** (3)	–28** (4)	–26 (3)	–21 (3)	–19 (2)	–20 (2)	–17 (2)	–20 (2)	–21 (3)
Board control	–17 (2)	–16 (4)	–13 (6)	–8*** (4)	–43*** (5)	–14 (5)	–13 (4)	–18 (4)	–18 (3)	–12 (4)	–13 (4)	–26*** (4)
Vesting	–17 (2)	–20*** (3)	–4*** (5)	–24 (4)	–23 (4)	–21 (3)	–17 (4)	–21 (3)	–15 (3)	–23 (3)	–18 (3)	–11** (3)
Ownership stake	–8 (2)	–13** (3)	–0** (5)	–6** (4)	–19** (4)	–10 (3)	–7 (3)	–10 (3)	–7 (2)	–11 (3)	–5 (3)	–7 (3)
Participation	–2 (2)	3 (3)	1 (4)	7*** (5)	–15*** (5)	–5 (4)	3 (4)	4** (3)	–6** (3)	7* (4)	–2* (3)	–7* (4)
1Investment amount	–0 (2)	–0 (2)	7 (5)	4* (3)	–6* (4)	–3 (3)	0 (3)	0 (2)	–0 (2)	2 (3)	3 (3)	–3 (3)
Option pool	2 (2)	0* (3)	9* (4)	–3 (4)	2 (4)	0 (3)	2 (3)	2 (2)	2 (2)	0 (3)	0 (3)	6 (3)
Redemption rights	4 (2)	16*** (4)	–7*** (5)	14* (5)	–0* (5)	15 (5)	9 (4)	6 (4)	3 (3)	20*** (4)	–1*** (4)	–0 (4)
Dividends	28 (2)	33 (4)	23 (6)	41*** (5)	14*** (6)	38** (5)	24** (4)	29 (3)	27 (3)	45*** (4)	25*** (3)	20** (4)
Average	–11 (1)	–9 (2)	–9 (3)	–8*** (2)	–18*** (3)	–11 (2)	–10 (2)	–11 (1)	–11 (1)	–8 (2)	–11 (2)	–13 (2)
Number of responses	524	227	85	121	80	132	144	239	288	146	209	189

VCs are somewhat less flexible on terms that manage internal risk.

Healthcare VC firms are substantially less flexible on many features than the IT VC firms. In addition to participation that we already discussed, the Health subsample is less flexible on control, valuation, ownership stake, and dividends. The board control provisions are particularly striking, because Healthcare VC firms rank them as their least flexible term, while the IT VC firms rank control in the middle of their concerns. This is consistent with Healthcare companies being more susceptible to internal risks (e.g., project selection).

5. Post-investment value-added and exit

Previous research and anecdotal evidence suggest that VCs are actively involved in managing their portfolio companies, frequently meeting with their portfolio companies' management and playing an important role in critical hiring and strategic decisions. For example, [Hellmann and Puri \(2002\)](#) find that VCs are important to the professionalization of startups. [Lerner \(1995\)](#) examines how VCs are influential in the structuring of the boards of directors. [Amornsiripanitch et al. \(2016\)](#) show that VCs aid in hiring outside managers and directors. In their study of investment memoranda, [Kaplan and Strömberg \(2004\)](#) find that

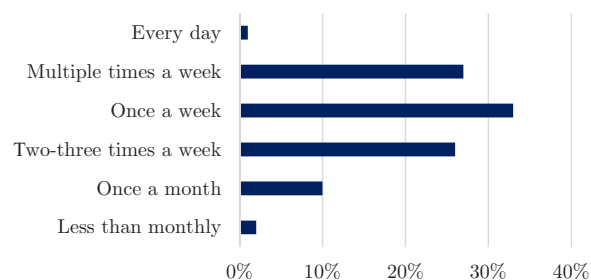


Fig. 3. Involvement in portfolio companies. The percentage of VC survey respondents who answered that they interacted with their portfolio companies at each frequency in the first six months after investment.

VCs expect to add value when they make their investment decision. In this section, we attempt to add to the previous work by asking the VCs to describe their post-investment deal management, particularly activities in adding value to portfolio companies.

5.1. Value-added activities

Accordingly, we first asked a number of questions about how VCs interact with their portfolio companies after investing. [Fig. 3](#) reports that VCs interact frequently with

Table 12

Activities in portfolio companies.

The average percentage of portfolio companies with which our VC survey respondents undertake each activity. Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	Stage			Industry		IPO rate		Fund size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Hire board members	58 (2)	55 (2)	60 (4)	52*** (3)	70*** (3)	65 (3)	61 (3)	60 (2)	57 (2)	56 (3)	59 (2)	61 (3)
Hire employees	46 (2)	51** (2)	41** (4)	49 (3)	43 (4)	46 (3)	49 (3)	44 (2)	48 (2)	52* (3)	46* (3)	41** (3)
Connect customers	69 (1)	69 (2)	67 (4)	71 (3)	71 (3)	70 (2)	67 (3)	68 (2)	69 (2)	74** (2)	67** (2)	67 (2)
Connect investors	72 (1)	81*** (2)	58*** (4)	76 (3)	81 (3)	74 (3)	76 (2)	69*** (2)	76*** (2)	76** (3)	69** (2)	75 (2)
Strategic guidance	87 (1)	86 (1)	88 (2)	87 (2)	89 (2)	87 (2)	89 (2)	86 (1)	88 (1)	87 (2)	87 (1)	87 (1)
Operational guidance	65 (1)	65 (2)	62 (4)	67 (3)	66 (3)	66 (2)	67 (3)	63 (2)	67 (2)	68 (3)	66 (2)	61** (2)
Other	20 (2)	19 (2)	17 (4)	23** (4)	12** (3)	18 (3)	19 (3)	20 (2)	21 (2)	19 (3)	23 (3)	19 (3)
Number of responses	444	196	71	101	75	118	122	202	243	125	180	154

their portfolio companies. Over 25% interact multiple times per week and an additional one-third interact once a week, indicating that 60% of VCs report interacting at least once per week with their portfolio companies. Fewer than one-eighth report interacting once per month or less. The high level of involvement is consistent with previous work and anecdotal evidence.

There is little variation across subsamples. Whatever their specialization, VCs claim to be actively involved with their portfolio companies. This lack of observed difference is arguably a surprising result. It is not consistent with early-stage and late-stage VCs fundamentally differing in the frequency of interactions. It seems plausible that companies at all stages of development go through a number of critical phases (raising funding, exiting, hiring senior executives, deciding on a strategic plan) that require the regular involvement of investors. It is also possible that VCs monitor their investment closely, because even late-stage VC companies have a relatively high rate of failure.

Table 12 looks more deeply into VC interaction with their portfolio companies by asking what type of value-add VCs provide. 87% of VCs are involved in strategic guidance of their portfolio companies. This is not surprising because many VCs serve either as board members or board observers. 72% of VCs help their companies connect with investors in future rounds. Again, this is not surprising given that they are investors and are presumably knowledgeable about the VC industry and other investors. Perhaps more surprisingly, 69% of the VCs say they help their companies connect to customers and 65% of VC firms say they provide operational guidance. Both of these responses suggest a substantial and more day-to-day practical involvement. Finally, the VCs say they also help in hiring—both board members (58%) and employees (46%).

Across subsamples, connecting to investors is more important for early-stage investors. This is consistent with more competition for late-stage deals (as suggested in

Table 4). Early-stage VCs and California VCs are more likely to help with hiring employees. California VCs also are more involved in helping companies find customers, potentially because they work in a cluster-like environment that makes them better connected along the whole of the supply chain of their ecosystem.

We also gave respondents an opportunity to describe their activities, if they felt the offered list was not sufficient. One out of five respondents used this opportunity. The more frequently mentioned activities were related to liquidity events (introducing a company to acquirers or connecting with investment banks, helping with mergers and acquisitions (M&A)), mentoring, fund raising, product development (including help with global expansion, technical advice, operating procedures), and various board service activities (such as board governance).

Overall, the results in Table 12 suggest that VCs are not passive investors and actively add value to their portfolio companies. The results add to and confirm the previous work by suggesting that VCs take an active role in customer introductions and operational guidance in addition to providing help with hiring and strategy.

5.2. Exit

Because VCs invest in private companies through funds that are usually structured as ten-year vehicles and because VCs receive their profit share or carry only when they return capital to their investors, the timing and type of exit is critical to VC investment success. Gompers (1996) shows that achieving a successful IPO exit is useful for a VC firm to establish a reputation and raise new capital.

Accordingly, we surveyed our VCs on their exits. Overall, the average VC firm reports that 15% of its exits are through IPOs, 53% are through M&A, and 32% are failures. These rates of successful outcomes may seem high to some

readers. It is possible, however, that some M&A events are disguised failures in the VC industry and so statistics on M&A may not be a valid measure of success. A major concern with any survey is that survey respondents would bias their responses by overweighting positive outcomes and underweighting less favorable outcomes. Indeed, many of our respondents said that their previous fund was well above the median in terms of performance. On the other hand, our respondents gave what appear to be honest answers to the question of unicorn valuation.

To ascertain whether there is an appreciable bias, we compare the survey responses with data matched from VentureSource. We report two different measures of exits from VentureSource, the first using data over the past ten years, spanning approximately respondents' previous fund and the second including the full sample data for the VC firm. The responses of our respondents and the data from VentureSource exhibit a high degree of correspondence although our respondents report a slightly higher percentage of IPOs and a lower percentage of failures, suggesting that our survey respondents may be more successful than a random sampling of VCs. Survey respondents report that on average, 15% of the deals end in IPO, while the IPO rate in VentureSource data is 13%. Moreover, the subsample results are also consistent. For example, the Health and IT subsamples report 23% and 13% of IPOs, respectively. The matched VentureSource samples report similar values of 22% and 12%. Several VCs explicitly said that many of their M&A are disguised failures, supporting the difficulty of interpreting the M&A results from available data sets on VC outcomes. Overall, these results again suggest that the VCs are, on average, reporting their experience truthfully.⁷

Empirically, it is difficult to measure the exact returns earned by VC firms using commercially available data sets, because doing so requires data on deal structure and eventual exits that are usually not available. To estimate the return distribution, we asked our survey respondents to describe the distribution of exit multiples that they experienced on their past investments. On average, 9% of exits have a multiple greater than ten and a further 12% have a multiple between five and ten. There are more high multiple exits than IPOs (and not all IPOs result in such high exit multiples). On the other end of the spectrum, 24% of outcomes are reported to have lost money in a MOIC calculation. 19% had an exit multiple of between one and two, likely losing money on a present value basis. These results confirm the wide dispersion of financial outcomes for VC investments and further support the notion that there is a wide distribution among outcomes for M&A transactions. Early-stage and high IPO firms report higher multiples. The IT, Large, and CA subsamples have a higher dispersion of outcomes, with more of the least and most successful outcomes.

In our interviews, we asked the VCs whether external capital market cycles affected their decision to invest and exit. As mentioned earlier, almost uniformly, they said those cycles had only a modest impact on their investment

decisions, but had a larger impact on the timing decision of their exits. They prefer to exit when the IPO and M&A markets are robust.

6. Sources of value

6.1. Relative importance of deal sourcing, investment selection, and value-add

The previous sections have shown that VCs exert effort and expend resources on deal sourcing, deal selection, and post-investment value-add. As mentioned earlier, Sørensen (2007) estimates the contribution of VC value-add to be 40% and that of deal sourcing and selection combined to be 60%. In Table 13, we ask the VCs both to assess and rank the importance of deal sourcing, deal selection, and VC value-add in contributing to value creation.

The top part of Table 13 indicates that a majority of VCs believe that all three are important for value creation with selection and value-add being important for roughly 85% and deal flow for 65%. The bottom part of Table 13 shows that deal selection emerges as the most important of the three with 49% of VCs ranking it most important. Value-add follows with 27% and deal flow lags with 23%.

Selection is assessed as the most important factor for all of the sub-categories and is relatively more important for the high IPO firms. Deal flow is relatively more important for IT investors, large investors, and less successful investors, while value-add is relatively more important for small investors, health investors, and foreign investors.

While we do not ask exactly the same question as Sørensen, the results are qualitatively similar. Deal sourcing/deal selection and VC value-add both contribute to value creation, but deal sourcing/deal selection is relatively more important. At the same time, we obtain a new result by distinguishing between deal sourcing and deal selection, and finding that deal selection is perceived as more important than both deal sourcing and VC value-add.

6.2. Sources of success and failure

In addition to asking about the relative importance of sourcing, selection, and VC-value-added in their overall investment performance, we also asked the VCs to identify the most important drivers of success and failure in the investments they actually made.

The first panel of Table 14 presents the results for success. Recalling our discussion of jockey versus horse, the team or jockey is important for success for 96% of the VCs and the most important factor for 56%. Not one of the business-related factors—business model, technology, market, and industry—was rated most important by more than 10% of the VCs for success. Cumulatively, the four were rated most important by 25% for success. In this sample overall, then, the jockey is perceived to be more important than the horse.

That said, there is some cross-sectional variation. For late-stage VCs, the business-related factors cumulatively equal the team in importance for success. This suggests that as a company matures, the business becomes increasingly established while the specific executives become

⁷ If we use only the matched VentureSource sample, the self-reported exit outcomes are virtually the same.

Table 13

Important contributors to value creation.

The percentage of our VC survey respondents who marked each factor as important (top) and as most important (bottom) for value creation. Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	Stage			Industry		IPO rate		Fund size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Important factor												
Deal flow	65 (2)	68 (3)	65 (5)	73*** (4)	49*** (5)	62 (4)	64 (4)	69 (3)	62 (3)	73 (4)	67 (3)	57*** (4)
Selection	86 (1)	87 (2)	87 (4)	91** (3)	81** (4)	89 (3)	88 (3)	88 (2)	85 (2)	87 (3)	87 (2)	84 (3)
Value-add	84 (2)	85* (2)	77* (5)	78** (4)	89** (4)	87 (3)	83 (3)	84 (2)	83 (2)	86* (3)	79* (3)	89** (2)
Other	4 (1)	3 (1)	6 (3)	3 (1)	3 (2)	5 (2)	4 (2)	4 (1)	4 (1)	2 (1)	4 (1)	5 (2)
Most important factor												
Deal flow	23 (2)	27 (3)	19 (4)	29*** (4)	13*** (4)	19** (3)	31** (4)	27 (3)	21 (2)	27 (4)	25 (3)	18** (3)
Selection	49 (2)	44 (3)	52 (5)	49 (4)	52 (5)	57** (4)	46** (4)	51 (3)	46 (3)	48 (4)	50 (3)	48 (4)
Value-add	27 (2)	27 (3)	27 (5)	21** (4)	35** (5)	22 (3)	22 (3)	22*** (3)	32*** (3)	23 (3)	23 (3)	34** (3)
Other	1 (0)	1 (1)	2 (1)	1 (1)	0 (0)	2 (1)	1 (1)	1 (1)	1 (1)	1 (1)	1 (1)	0 (0)
Number of responses	509	226	82	122	78	129	139	231	281	145	205	179

relatively less important. Business-related factors also are roughly equal in importance for healthcare investors, suggesting that the business—likely intellectual property—is both more established and established earlier. The VCs also believe that timing and luck matter with over 50% of the VCs saying they are important and 12% and 6%, respectively, rating them as the most important factors. At the same time, very few VCs ranked the board of directors or their own contribution as the most important factor for success. We view these results on timing, luck, and own contribution, again, as encouraging that the VCs answered truthfully. One might have expected self-serving or even simply overconfident VCs to understate the importance of timing and luck and overstate the importance of their own contributions.

The second panel of Table 14 presents the analogous results for failure. They are qualitatively similar to those for success. Overall, the team is the most important factor for failure, particularly for early-stage and IT VCs. The team and business-related factors are of roughly equal importance for later-stage and healthcare investors. Timing and luck play a role in failures, although less of a role than in successes. And own contribution is of relatively little importance.

The emphasis on team as critical for success and failure is consistent with the VCs emphasis on team in selection. The lack of emphasis on own contribution is more surprising in that it appears less consistent with the finding in Table 13 that 27% of the VCs view value-add as the most important source of value creation. One way to reconcile these is that some value-add takes the form of choosing or putting in the right management team as well as improving the business model or picking the right time to invest.

7. Internal organization of VC firms

Relatively little is known about the internal organization of VC firms. Because VCs are often secretive about the internal workings of their firms, we asked them how their firms are organized and structured. When possible, we then discuss how the organization and structure relate to VC decision-making.

Table 15 confirms the perception that institutional VC firms are small organizations. The average firm in our survey employs 14 people, five of whom are senior partners in decision-making positions. VC firms have relatively few junior deal-making personnel (about one for every two partners) and an average of 1.3 venture partners. Others working at VC firms would include entrepreneurs in residence, analysts (likely at larger firms), back-office personnel, and logistics personnel. Note that as Table 1 shows, 81% of our firm responses come from partners, so our survey oversamples VCs in senior decision-making positions.

Early-stage VC firms are smaller and, in particular, have fewer junior-deal-making personnel than late-stage VC firms. To the extent that junior-deal-making personnel perform due diligence on the investments, this is consistent with the result that late-stage VCs focus relatively more on the business. Healthcare VC firms are more likely to have venture partners, again, potentially because healthcare and biotech industry investments require specialized skills to evaluate the business that non-full time venture partners (such as medical school faculty) can provide.

We asked the VCs how much they specialize. In 60% of the funds, partners specialize in different tasks; this degree of specialization is relatively uniform across subsamples. If respondents answered that partners in their VC

Table 14

Most important factor contributing to successful and failed investments.

The percentage of our VC survey respondents who marked each factor as the most important to their successful investments (top) and failed investments (bottom). Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	All	Stage		Industry		IPO rate		Fund size		Location		
		Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Successful investments: Most important factor												
Team	56 (2)	64*** (3)	42*** (5)	55* (4)	42* (5)	53 (4)	59 (4)	52* (3)	59* (3)	55 (4)	55 (3)	60 (4)
Business model	7 (1)	4*** (1)	18*** (4)	8 (2)	3 (2)	5 (2)	6 (2)	8 (2)	7 (1)	6 (2)	8 (2)	7 (2)
Technology	9 (1)	6 (2)	11 (3)	7*** (2)	31*** (5)	12 (3)	10 (2)	10 (2)	9 (2)	9 (2)	9 (2)	10 (2)
Market	2 (1)	1* (0)	4* (2)	0* (0)	3* (2)	4 (2)	2 (1)	3 (1)	1 (1)	2 (1)	2 (1)	2 (1)
Industry	7 (1)	6 (2)	10 (3)	6 (2)	6 (3)	6 (2)	8 (2)	8 (2)	6 (1)	6 (2)	7 (2)	6 (2)
Timing	12 (1)	11 (2)	11 (3)	16* (3)	7* (3)	7 (2)	9 (2)	10 (2)	13 (2)	11 (3)	11 (2)	11 (2)
Luck	6 (1)	7 (2)	5 (2)	6 (2)	3 (2)	9 (2)	6 (2)	7 (2)	5 (1)	11* (2)	5* (1)	3* (1)
Board of directors	1 (0)	0 (0)	2 (2)	1 (1)	4 (2)	2 (1)	1 (1)	1 (1)	1 (1)	0 (0)	1 (1)	1 (1)
My contribution	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)
Failed investments: Most important factor												
Team	55 (2)	60* (3)	48* (5)	57*** (4)	34*** (5)	51 (4)	59 (4)	50** (3)	59** (3)	54 (4)	52 (3)	59 (4)
Business model	10 (1)	7** (2)	16** (4)	13 (3)	10 (3)	7 (2)	9 (2)	6** (1)	12** (2)	8 (2)	11 (2)	10 (2)
Technology	8 (1)	6 (2)	7 (3)	3*** (1)	36*** (5)	16*** (3)	7*** (2)	13*** (2)	5*** (1)	8 (2)	9 (2)	8 (2)
Market	3 (1)	3 (1)	1 (1)	3 (1)	3 (2)	4 (2)	2 (1)	0*** (0)	4*** (1)	6** (2)	2** (1)	1** (1)
Industry	10 (1)	10 (2)	16 (4)	13 (3)	7 (3)	9 (2)	8 (2)	14** (2)	8** (2)	9 (2)	13 (2)	9 (2)
Timing	9 (1)	8 (2)	10 (3)	9 (3)	5 (3)	8 (2)	9 (2)	10 (2)	8 (2)	10 (2)	9 (2)	9 (2)
Luck	3 (1)	4 (1)	1 (1)	2 (1)	1 (1)	4 (1)	4 (1)	3 (1)	2 (1)	4 (2)	3 (1)	1 (1)
Board of directors	3 (1)	2 (1)	1 (1)	2 (1)	4 (2)	1 (1)	3 (1)	2 (1)	3 (1)	1 (1)	2 (1)	4 (1)
My contribution	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Number of responses	511	226	82	120	78	130	141	235	279	145	205	181

firm specialized in different tasks, we asked what the respondents specialized in. Respondents could choose more than one option. For those firms with specialized partners, 44% of respondents are generalists, 52% of respondents are responsible for fund raising, and 55% and 53% of them are also responsible for deal making and deal sourcing, respectively. Interestingly, almost a third of respondents also reported that they specialized in helping startups with networking activities. These patterns are consistent with the importance of deal sourcing and post-investment value-add.

We also asked the survey respondents to describe the structure of their normal work-week.⁸ Respondents re-

ported working an average of 55 h per week. VCs spend the single largest amount of time working with their portfolio companies, 18 h a week. This is consistent with the typical respondent holding five board seats. Healthcare VCs spend somewhat more time helping their companies than do IT VCs even though they serve on slightly fewer boards. Overall, the amount of time and involvement in portfolio companies is consistent with their reporting that they add value and help their companies.

Consistent with the importance of sourcing and selecting potential deals, sourcing and networking are the second and fourth most important activities, at, respectively, 15 and seven hours per week. Networking also is likely useful for adding value to portfolio companies (through hiring and referring customers). VCs thus spend the bulk of their time on sourcing and value-adding activities. In addition, our VCs spend about eight hours per week on man-

⁸ Hoyt et al. (2012) and Rust (2003) present some earlier evidence on VCs' time use.

Table 15

Number of people working at funds.

The number of people in each role and the percentage of total people in each role at each of our VC survey respondents. Separate statistics are reported for firms with a focus on the early- or late-stage, a focus on IT or healthcare (Health), an above or below median IPO rate, an above median or below median fund sizes, and a location in California (CA), another US state (OthUS), or outside of the US (Fgn). Statistical significance of the differences between subgroup means at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

	Stage			Industry		IPO rate		Fund size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Partners	4.7 (0.2)	3.9*** (0.2)	6.3*** (1.2)	4.1 (0.2)	4.4 (0.3)	7.2*** (0.7)	4.2*** (0.2)	6.2*** (0.3)	3.5*** (0.2)	5.3 (0.5)	4.5 (0.2)	5.3 (0.7)
Venture partners	1.3 (0.1)	1.2 (0.1)	1.4 (0.3)	0.9*** (0.1)	2.1*** (0.3)	1.9** (0.2)	1.3** (0.2)	1.8*** (0.2)	1.0*** (0.2)	1.6 (0.3)	1.2 (0.2)	1.4 (0.2)
Associates	2.9 (0.2)	2.0*** (0.2)	4.7*** (0.7)	2.4 (0.3)	2.2 (0.3)	4.4*** (0.7)	2.4*** (0.2)	4.4*** (0.4)	1.7*** (0.1)	2.7 (0.3)	2.7 (0.3)	3.7** (0.5)
Other	4.5 (0.7)	3.2** (0.4)	5.3** (0.9)	5.0 (1.4)	3.1 (0.5)	9.9*** (2.6)	3.1*** (0.4)	7.8*** (1.5)	2.2*** (0.3)	5.8 (1.3)	4.5 (0.9)	4.6 (1.4)
Total	13.5 (0.9)	10.3*** (0.7)	17.7*** (2.4)	12.3 (1.7)	11.8 (0.9)	23.5*** (3.4)	11.0*** (0.7)	20.2*** (1.9)	8.4*** (0.6)	15.4 (1.8)	12.9 (1.4)	15.0 (1.9)
% Partners	48 (1)	50** (2)	43** (2)	48 (2)	47 (2)	44 (2)	48 (2)	42*** (1)	53*** (1)	51 (2)	49 (2)	44*** (2)
% Venture partners	10 (1)	10 (1)	8 (1)	8*** (1)	15*** (2)	11 (1)	11 (1)	10 (1)	10 (1)	11 (1)	9 (1)	10 (1)
% Associates	20 (1)	18*** (1)	24*** (2)	20 (2)	17 (2)	20 (1)	19 (1)	22** (1)	19** (1)	17* (1)	20* (1)	24*** (1)
% Other	22 (1)	22 (1)	25 (2)	24 (2)	21 (2)	25 (2)	22 (1)	25*** (1)	19*** (1)	21 (2)	22 (1)	22 (1)
Number of responses	610	245	96	131	87	144	165	263	335	176	239	219

aging their firms and about three hours each week managing LP relationships and fund raising. This last result also speaks to the seniority of our sample respondents.

The next set of questions address the VCs' compensation and investment practices. In the VC industry, success attribution is possible because in most cases a specific partner is responsible for a portfolio company. Alternatively, firms may choose to compensate partners on firm success to encourage cooperation among partners and to remove the incentive to do suboptimal deals in order to get credit for them. We therefore were interested in the extent to which partners of VC firms are compensated on individual investments. In 74% of VC firms, partners are compensated based on individual success. Interestingly, more successful and larger VC firms are somewhat less likely to allocate compensation based on success. In 44% of VC firms, partners receive an equal share of the carry, particularly in early-stage funds. Similarly, in 49% of the firms, partners invest an equal share of fund capital. These results are arguably consistent with firms balancing the need for cooperation against the need to reward individual success.

Overall, VC firms appear to approach compensating their partners in different ways. This has not been explored in detail in academic research. Agency theories suggest that compensation structures should have a substantial impact on effort provision and eventual outcomes. Chung et al. (2012) show that explicit pay for performance incentives exist in VC and PE, but there are also powerful implicit incentives that come with the need to raise additional capital in the future. Our results suggest that studying the relationship between compensation of VCs, their contracts with their investors (LPs), and outcomes would be an interesting avenue for further research.

We conclude this section by asking how funds make investment decisions within the partnership. Roughly half the funds—particularly smaller funds, healthcare funds, and non-California funds—require a unanimous vote of the partners. An additional 7% of funds require a unanimous vote less one. Roughly 20% of the funds require consensus with some partners having veto power. Finally, 15% of the funds require a majority vote. Understanding whether these decision rules affect investment and partnership success is also an interesting avenue for future research.

8. Conclusion

In this paper, we seek to better understand what VCs do and, potentially, why they have been successful. We survey 885 institutional VCs at 681 firms to learn how they make decisions. Using the framework in Kaplan and Strömberg (2001), we provide detailed information on VCs' practices in pre-investment screening (sourcing evaluating and selecting investments), in structuring investments, and in post-investment monitoring and advising.

The paper makes contributions in two broad areas. First, the results add to the literature on the nature of and relative importance of deal sourcing, deal selection, and value-added. VCs devote substantial resources to all three. While VCs believe that deal sourcing, deal selection, and post-investment value-added all contribute to value creation, deal selection emerges as the most important of the three for our sample of VCs. The result is consistent with Sørensen (2007), but extends Sørensen and presents new results that distinguish deal sourcing and deal selection.

We also add to the literature on deal selection and deal success. Not surprisingly, deal selection and deal success

are related to both the management team and business-related characteristics of the portfolio companies. Overall, however, our sample VCs, particularly those investing in early-stage and IT deals, consider the management team as more important both for deal selection and for deal outcomes. This result is consistent with the results in Bernstein et al. (2017) that angel investors focus more on the team. The result is less consistent with Kaplan et al. (2009) who find that the management team changes more than the business. There are two ways to reconcile their results with ours. It is possible that VCs invest in teams that they believe are good at picking businesses. It also is possible that VCs focus on the team because they expect that several companies will enter a particularly good space or business. A potential future use of our data set is to see if cross-sectional variation in that view predicts future VC performance.

Second, we find little evidence that VCs use the net present value or discounted cash flow techniques taught at business schools and recommended by academic finance. This contrasts with the results in Graham and Harvey (2001) for CFOs, but is more similar to the results for private equity investors in Gompers et al. (2016a). Like the private equity investors, the VCs rely on multiples of invested capital and internal rates of return. Unlike the CFOs and private equity investors, a meaningful minority of VCs do not forecast cash flows at all.

Finally, our results also are potentially relevant for practitioners, particularly entrepreneurs who are interested in raising funds from VCs. They can use these results to understand how they will be evaluated, what kinds of contracts they can negotiate, and what they can expect VCs to do post-investment.

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