WHEN DO ENTREPRENEURS ACCURATELY EVALUATE VENTURE CAPITAL FIRMS' TRACK RECORDS? A BOUNDED RATIONALITY PERSPECTIVE

BENJAMIN L. HALLEN
EMILY COX PAHNKE
University of Washington

There has been substantial research on the value of young firms engaging high-quality partners. This literature, as well as the broader firm reputation literature, has tended to assume that individuals leading such firms find it relatively easy to accurately assess potential partner quality as reflected in their track record of past performance and behavior. Yet this prior work has largely focused on information-rich environments where potential partners are generally large and receive substantial public attention, and with whom evaluators may have high familiarity. In contrast, we draw on bounded rationality to theorize about how in information-sparse environments, individuals may *misperceive* the quality indicated by a firm's objective track record. We argue that accurate evaluations depend not only on individuals' motivation and ability to access information but on the convergence of these factors with attributes of the potential partner being evaluated. We test and find support for our framework using a novel dataset of 1,278 ratings of the quality of 153 early-stage venture capital firms by entrepreneurs that approached these firms for investments. Overall, this paper extends understanding of firm reputation dynamics to information-sparse contexts, and explores why individuals such as entrepreneurs may at times have difficulty accurately evaluating partners.

Young firms often lack critical resources (Stinchcombe, 1965) and are of indeterminate quality, and so benefit from working with the right partners. Partnerships with customers, suppliers, alliance partners, and equity investors may help young firms gain access to superior resources (Lee, Pollock, & Jin, 2011; Powell, Koput, & Smith-Doerr, 1996), provide awareness of important industry information (Hallen, Katila,

& Rosenberger, 2014; Vissa & Chacar, 2009), improve innovation (Pahnke, Katila, & Eisenhardt, 2015), and enhance a firm's reputation (Khaire, 2010; Pollock & Gulati, 2007; Stuart, Hoang, & Hybels, 1999). To gain these benefits, entrepreneurs look for high-quality partners (Hallen, 2008). Prior research has suggested that entrepreneurs may be able to credibly assess the quality of a potential partner's underlying capabilities and behaviors by looking at their track record, or the quality of past behavior and outputs relative to competitors (Agarwal, Ganco, & Ziedonis, 2009; Kaplan & Schoar, 2005; Lee et al., 2011; Rindova, Williamson, Petkova, & Sever, 2005; Weigelt & Camerer, 1988). Although prior research has devoted substantial attention to the benefits of high-quality partners for young firms, and has begun exploring how entrepreneurs may attract such partners (Hallen & Eisenhardt, 2012; Zott & Huy, 2007), such literature has generally assumed that it is relatively easy for entrepreneurs to identify high-quality partners.

Similarly, much of the literature on firm reputation has supported the idea that accurately evaluating other firms is relatively easy. While definitions vary (Lange, Lee, & Dai, 2011; Rindova & Martins, 2012), a common conceptualization of firm reputation is based on a stakeholder group's collective perception

of a firm based on the quality of its track record (Chandler, Haunschild, Rhee, & Beckman, 2013; Pfarrer, Pollock, & Rindova, 2010; Pollock, Lee, Jin, & Lashley, 2015). This literature is pertinent to the identification of high-quality partners as it shows that individuals' perceptions of a firm's quality are indeed influenced by its track record of economic performance and prior successes[1] (Fombrun & Shanley, 1990; Lee et al., 2011; Rindova et al., 2005). Likewise, a survey of academic experts from across functional backgrounds found similarity in ascriptions of firm reputations (Highhouse, Broadfoot, Yugo, & Devendorf, 2009). Overall, the firm reputation literature supports the assumption that entrepreneurs may find it relatively easy to evaluate and identify high-quality partners.

The firm reputation literature, however, has tended to focus on collective perceptions of large firms in information-rich environments where substantial information is disclosed by the firms themselves or by third-party intermediaries such as ratings agencies. Yet information about potential partners may be sparse if they are small, privately held, disclose only limited data, or do not garner attention from influential information intermediaries. Such environments often lack the commensurability, or ease of firm comparisons, of information-rich environments (Espeland & Sauder, 2007). Entrepreneurs seek out partners from many different markets, some of which are information-sparse; for instance, entrepreneurs pursuing high-potential opportunities often seek capital and advice from venture capital firms (VCs) that are small, privately held, and private about key metrics such as returns. In such settings, it is unclear whether it is indeed easy to evaluate the quality indicated by a firm's track record of past performance and behavior. This also raises questions around the accuracy, bias, and sources of variance across individuals evaluating firms—questions that are core to the firm reputation literature. Indeed, while there is increasing awareness that social construction may play a role in how firms are perceived, "the nature of the perceptions that underlie the favorability of reputations is poorly understood" (Rindova & Martins, 2012: 21).

In this paper, we ask the question "When will entrepreneurs be more or less accurate in their perceptions of another firm's track record?" to develop theory at the boundaries of assumptions common in the entrepreneurial partnership and firm reputation literatures. In other words, we explore when entrepreneurs are likely to perceive a potential partner as having a high- or low-quality track record, when comparing its past behavior and performance to competitors' actually indicates the opposite. We ground our arguments in the concept of bounded rationality, recognizing that individuals often engage in limited information gathering in order to reduce cognitive effort (March, 1978; Simon, 1947; Tversky & Kahneman, 1974). We argue that in settings where information is sparse, accurate evaluations may depend on the convergence of characteristics of the evaluator and of the firm they are trying to evaluate, and that even individuals with central social networks and high motivation may misperceive firm quality. Whereas the prior firm reputation literature has emphasized track records and prominence as distinct (though related) elements of a firm's reputation (Lee et al., 2011; Rindova et al., 2005), we argue that these attributes may have opposing effects on evaluative misperceptions.

We develop our predictions in the context of entrepreneurs evaluating the past track records of VCs with whom they have met. This setting is characterized by sparse information and lacks information intermediaries such as analysts or widely accepted third-party rankings to make data about VCs easily available. Substantial research has addressed the subject of VC track records and shown that factors such the extent of past investments having initial public offerings (IPOs), the number of other entrepreneurs that have selected the VC as an investor, and years of experience are indicative of a VC's ability to help ventures develop and innovate (Gompers, 1996; Hochberg, Ljungqvist, & Lu, 2007; Lee et al., 2011).

We employ hybrid methods, and utilize both quantitative and qualitative analysis to help overcome the limitations of individual research methods (Edmondson & McManus, 2007; Kaplan, 2015). We conducted two waves of qualitative interviews to validate and refine our underlying behavioral model of entrepreneurs being boundedly rational and often exerting limited effort in evaluations of VCs. We then tested our predictions of perceptual accuracy using a novel dataset of 1,278 ratings of the quality of 153 early-stage VCs by 785 entrepreneurs that approached these VCs for investments and who subsequently posted their evaluations to a restricted-access online community of entrepreneurs. We assess

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[1] Research on individual reputations within groups, however, has found that such reputations may only be coupled with past behavior for more socially prominent individuals (Anderson and Shirako, 2008). We return to these differences in our theory.

the accuracy of entrepreneurs' perceptions of VC track record by contrasting these ratings with a multi-item, composite index of VC track record developed by Lee et al. (2011) and validated in a number of recent studies (Pahnke, McDonald, Wang, & Hallen, 2015; Park & Steensma, 2013; Pollock et al., 2015). Overall, our hybrid methods blend the rigor of statistical analysis with a rich understanding of underlying mechanisms.

Our hybrid methods provide support for our arguments. Our fieldwork indicates that entrepreneurs often exert limited effort in evaluating VCs' track records, and tend to rely on a handful of common (and potentially fallible) evaluative heuristics. These interviews indicate that entrepreneurs' engagement with other challenges may be a substantial factor in limiting their effort in evaluations. Our quantitative analysis offers support for our predictions; we find that entrepreneur centrality and motivation both improve evaluative accuracy. We also find that a VC's track record and prominence have opposite effects on the accuracy of evaluations—though we also surprisingly find that the moderating effects of each are more complex than theorized.

This research offers several contributions. First, where the firm reputation literature has tended to focus on collective perceptions in information-rich environments (Fombrun & Shanley, 1990; Rindova et al., 2005), we explore evaluations in information-sparse environments and examine when individual perceptions have greater or weaker matches with objective information about firms. In doing so, we extend recent literature that has unpacked the cognitive micro-foundations of firm reputations (Mishina, Block, & Mannor, 2012). Second, our findings of substantial evaluator variance provide a contrast to the firm reputation research that has suggested that perceptions of firm quality tend to be homogenous within a stakeholder group with similar concerns (Jensen, Kim, & Kim, 2012; Lange et al., 2011). Third, whereas literature on entrepreneurship has long encouraged young firms to overcome their liabilities of newness by working with high-quality partners (Lee et al., 2011; Powell et al., 1996; Stuart et al., 1999), we offer the insight that accurately identifying high-quality partners may be challenging and depend on characteristics of both the entrepreneur and of the partner they are evaluating. Overall, by exploring a context at the boundary of traditional studies of firm reputation, we highlight the many challenges that individuals may have in accurately evaluating the quality of firms.

THEORETICAL ARGUMENTS

Bounded Rationality and Assessment of Firm Quality

The interorganizational partnership literature and much of the firm reputation literature has built on the concept of information signals from economics to understand how individuals assess firm quality (Lee et al., 2011; Rindova et al., 2005; Shapiro, 1983; Spence, 1973; Weigelt & Camerer, 1988). These literature streams have suggested that evaluators utilize a multi-stage process to infer quality from past behavior and performance. First, evaluators identify and access information about a target of interest. Second, evaluators recognize the extent to which the information is correlated with the underlying quality of interest. Third, evaluators situate the information in the context of the distribution of comparable information for competing firms. Finally, evaluators triangulate across multiple related types of information. In our context, this process suggests that entrepreneurs will identify and access information about a VC's past performance and behavior, consider the extent to which each is likely to be highly correlated with VC quality, assess relative quality by comparing each element against other VCs, and triangulate across available information sources. Overall, this process of signal interpretation suggests that the accurate interpretation of track records requires extensive information gathering and substantial cognitive processing.

However, the bounded rationality perspective suggests that individuals do not always engage in extensive information gathering and processing to identify optimal choices (March & Simon, 1958; Simon, 1947). Bounded rationality emphasizes that instead of optimizing every decision, individuals often satisfice due to limitations in their ability to access and process information (Gavetti, Levinthal, & Ocasio, 2007; March, 1978; Simon, 1947, 1955). These ideas have substantially influenced other social science theories. For instance, research in cognitive psychology has extended Simon's original idea of "satisficing" (Simon, 1956) by showing that individuals tend to make decisions on the basis of effort-preserving, but sometimes fallible, cognitive heuristics (March & Simon, 1958; Taylor, 1981; Tversky & Kahneman, 1974). Underlying this argument is the recognition that individuals may either have an inherent tendency to preserve energy (i.e., are cognitively "lazy"), or that such economizing may be a rational reaction by individuals facing an overwhelming number of decisions

(Simon, 1955; Taylor, 1981). Similarly, research in social networks parallels bounded rationality's arguments that information availability is influenced by an individual's accessible information paths, emphasizing how social connections may facilitate the uneven flow of information to individuals (Coleman, Katz, & Menzel, 1957).

Taken together, these mechanisms suggest that individuals evaluating another firm's quality based on its track record may deviate from the process described by the signaling and reputation literatures. In particular, bounded rationality suggests that individuals will primarily attend to information that is highly accessible (Kahneman, 2011; O'Reilly, 1982; Tversky & Kahneman, 1973), and that instead of relying on cognitively difficult assessments of correlations (Crocker, 1981; Nisbett & Ross, 1980), individuals may often rely on simplifying heuristics that yield approximate, though often systematically biased, inferences (Tversky & Kahneman, 1974).

We build on these insights and use examples from our empirical setting of entrepreneurs evaluating potential VC investors to help illustrate our arguments. First, we consider how limitations in their *ability to access* information and their *motivation* may lead to *misperceptions* in how individuals evaluate a firm's quality relative to the quality indicated by its objective track record. Second, we argue that even when motivated to access information, individuals may still misperceive firms with weaker track records due to difficulties in identifying and accessing complete and reliable information. Third, we argue that misperceptions may also arise from biases related to firms being highly prominent—though we expect such misperceptions to be at least partially attenuated for individuals who are better able and motivated to access information. As a whole, we argue that accuracy in evaluations of quality from a firm's track record is neither automatic nor homogenous, but rather depends on a convergence of factors related to both the evaluator and of the firm they are evaluating.

Ability to Access and Motivation to Gather Information

In contrast to the classic treatments of information signals that underlie much of the inter-organizational partnership and firm reputation literatures, we argue that individuals often rely on easily accessible information—but that some individuals may have social networks that provide them with a greater ability to easily access information. Bounded rationality suggests individuals preserve effort by relying on highly accessible information out of a (often mistaken) belief that it is representative of other information that might require more effort to access (Kahneman, 2011; O'Reilly, 1982; Tversky & Kahneman, 1973). A key factor influencing information accessibility is an individual's social network, as frequent interactions, mutual understanding, and inherent trust make social relationships a relatively easy and effective means of gathering information (Coleman et al., 1957; Powell et al., 1996). In our context, entrepreneurs may rely upon information obtained via connections to other entrepreneurs, lawyers, and investors (Saxenian, 1994; Stam, Arzlanian, & Elfring, 2014). Interactions within social networks are also often accompanied by the exchange of context-relevant gossip about others that may require little cognitive effort to process (Eder & Enke, 1991; Rosnow & Fine, 1976). Beyond the ease of access, information obtained via social networks may also be perceived as credible due to the social proof heuristic, whereby individuals often heavily weight the opinions of others in forming their own opinions (Cialdini, 1993; Rao, Greve, & Davis, 2001). Collectively, these mechanisms suggest that individuals may rely on their social networks when gathering information about a potential partner's track record and in comparing such information to that of competitors.

Of course, differences in past education, career histories, and networking abilities mean that individuals vary in their social networks (Hallen, 2008; Vissa, 2012). We argue that central network positions help facilitate more accurate evaluations by affording shorter paths to others within an industry, since shorter network paths relay information more accurately and rapidly (Burt, 2007). Central network positions may also provide multiple paths for accessing information on a target firm, thereby allowing for greater triangulation across information sources. Moreover, central network positions may make individuals more aware of what information they can and should gather to evaluate a firm. Similarly, these mechanisms may make more centrally positioned individuals more aware of other firms' track records, thereby making comparisons easier. Overall, especially in settings where information is otherwise sparse, central social network positions may improve individuals' information gathering abilities and reduce the extent of evaluative misperceptions.

Hypothesis 1. Entrepreneurs with more central network positions will be more accurate in their perceptions of a VC's track record.

While bounded rationality suggests that in general individuals may be conservative about gathering and processing information, some individuals may be more motivated to think carefully about what constitutes reliable information and to diligently search for such information (Kahneman, 2011; Simon, 1947). Such motivated searching may occur for several reasons. First, individuals may be motivated to engage in more careful and extensive information gathering when commonly utilized heuristics are less viable (Taylor, 1981; Tversky & Kahneman, 1974). When presented with information about the opinions and behaviors of others, individuals often utilize the social proof heuristic and heavily weight this information to quickly decide how they themselves should act (Asch, 1956; Cialdini, 1993; Darley & Latane, 1968; Rao et al., 2001). Our context features such a dynamic, where entrepreneurs are sometimes presented with social proof in the form of evaluations by other entrepreneurs. Due to the bounded rationality of these other entrepreneurs, however, such summary evaluations may be expected to exhibit inaccuracy—though individuals relying on the social proof heuristic may often fail to consider the possible extent of such inaccuracy (Cialdini, 1993). In contrast, when social proof is less available, individuals may be forced to think more deeply about what information reliably indicates another firm's quality and how this information might be gathered. This may produce a greater awareness of flaws in various types of information, reduce the willingness of individuals to satisfice by utilizing less-reliable information sources, and encourage more effortful and expansive information searching (Cyert & March, 1963; March & Simon, 1958).

Second, individuals may initially approach many potential partners due to uncertainty about whether any particular relationship is likely to form (Bruno & Tyebjee, 1986; Hallen & Eisenhardt, 2012). Because such uncertainty may lower the expected payoff of accurate evaluations (March & Simon, 1958), individuals may satisfice and base initial evaluations around easily accessible information. As individuals gain confidence in a potential partner's fit and mutual interest, though, they may be less willing to satisfice and engage in greater gathering and triangulating of information about the other firm. In our context, entrepreneurs may be especially motivated to gather information for evaluations once they receive a term sheet (i.e., an investment offer) from a VC. Accepting such an offer typically gives the VC substantial influence over the venture, and (often) the ability to fire the founder (Wasserman, 2012).

Although an offer may be flattering (Jones, 1964), the high stakes encourage entrepreneurs to be careful in their evaluations. We expect entrepreneurs receiving an offer from a VC to be more motivated to search for and carefully interpret information about the VC, thereby increasing the accuracy of their evaluation of the VC's track record. Together, these motivation arguments suggest:

Hypothesis 2a. Entrepreneurs not presented with summaries of others' ratings of a VC will be more accurate in their perceptions of that VC's track record.

Hypothesis 2b. Entrepreneurs that receive an offer from a VC will be more accurate in their perceptions of that VC's track record.

The Influence of Firm Track Record on Accuracy and Misperceptions

Even for individuals with high ability and motivation to access information, however, a potential partner's characteristics may lead to misperceptions about its quality. We argue that two elements of a target firm's reputation—the firm's objective track record and the firm's prominence—may have opposing effects on the accuracy with which it is evaluated. Past research has indicated a relationship between perceptions of a firm's quality and its track record of observable past behavior and outcomes relative to that of competitors (Fombrun & Shanley, 1990), though this research has not explored the accuracy with which such perceptions align with a firm's track record, nor how the track record itself may influence that accuracy.

To address this gap, we argue that it may be easier for individuals to pull information from the environment about firms with stronger track records, thereby making accurate evaluations easier. For instance, a VC with a stronger track record is likely to have had a longer lifespan, had more acquisitions or IPOs, funded more entrepreneurs, and have raised more investment funds relative to VCs with poor track records (Lee et al., 2011). Each of these activities creates information about the firm that is available to the entrepreneur to pull from the environment, either through other parties involved in a given success (e.g., lawyers), industry gossip, or coverage by information intermediaries. Moreover, firms with strong track records are likely to have a larger pool of potential customers, service providers, and employees who may have at least considered working

with the firm due to its higher quality (Benjamin & Podolny, 1999; Fund, Pollock, Baker, & Wowak, 2008). For example, an entrepreneur may be able to learn about a successful VC from other entrepreneurs that have raised funding from the VC, or from engineers who may have worked at one of the VC's portfolio ventures. Overall, individuals are likely to have more pathways for accessing information about firms with stronger track records.

Second, beyond access to information, firms with stronger track records may also be easier to accurately evaluate as they have had more past successes relative to failures. This may make overlooked or misinterpreted information less consequential. For example, if a VC had 10 positive investment outcomes in recent years, failing to identify one outcome would affect an evaluation less than were a positive outcome missed for a VC with only two positive outcomes.

Third, accurate evaluations depend on gathering information not only about the focal firm, but also about other firms so as to position the focal firm's track record relative to those of competitors. Thus, just as third-party rankings may enhance the commensurability, or ease of comparison, of an entire field (Espeland & Sauder, 2007), the aforementioned mechanisms may also provide individuals with a more accurate sense of what stronger track records look like in a field. Collectively, these mechanisms suggest that entrepreneurs will be better able to find, triangulate, and accurately interpret information about VCs with stronger track records.

Hypothesis 3a. Entrepreneurs evaluating a VC with a stronger track record will be more accurate in their perceptions of that VC's track record.

As argued above, firms with stronger track records are likely to have more information about them available in the environment for evaluators to "pull" from, due to their having had a greater number of successes and to more frequently having been considered by others as a potential partner. Yet pulling such information may be easier for some individuals than others, based on their social position or motivation. First, by providing shorter network paths to other members of a field, central network positions may reduce the effort needed to pull information about a firm's track record (Gulati & Gargiulo, 1999; Powell et al., 1996). Likewise, shorter network paths may reduce the likelihood of errors being introduced as information is relayed. Shorter network paths may also increase the likelihood of information about a firm being pushed to an individual via gossip or

mentors' advice (Hallen et al., 2014). Central network positions may thus amplify the effect of strong track records making a firm easier to accurately evaluate.

Second, the positive influence of a firm's track record on increasing the availability of information may have a greater impact on evaluative accuracy when individuals are more motivated to gather such information. Motivated individuals are more likely to work harder to pull available information, and to exert the cognitive effort required to carefully integrate and triangulate information from multiple sources. We thus expect motivated individuals to be more accurate in their evaluations because they are able to leverage the greater information accessibility provided by strong firm track records.

Hypothesis 3b. Greater entrepreneur centrality will amplify the positive relationship between a VC's track record and the accuracy of entrepreneur evaluations.

Hypothesis 3c. Greater entrepreneur motivation will amplify the positive relationship between a VC's track record and the accuracy of entrepreneur evaluations.

The Influence of Firm Prominence on Accuracy and Misperceptions

A firm's prominence can also influence how accurately it is evaluated. Prominence, or the collective awareness and recognition that a firm has received, is substantially driven by the choices of influential third parties and collective social dynamics at the field level (Deephouse, 2000; Pollock, Rindova, & Maggitti, 2008; Rindova et al., 2005). Prominence thus reflects the extent to which both accurate and inaccurate information about a firm is *pushed* to individuals in the field. While some literature has noted that prominence may serve as a prism that amplifies the consequences of positive and negative behaviors (Anderson & Shirako, 2008; Brooks, Highhouse, Russell, & Mohr, 2003; Mishina, Dykes, Block, & Pollock, 2010), this research has tended to focus on evaluations of large, public firms or highly cohesive groups of individuals in information-rich environments. In such situations, individuals may be highly familiar with the firms and individuals they are evaluating, thereby dampening psychological effects that might otherwise result in prominence fostering evaluative inaccuracies (Brooks et al., 2003; Zajonc, 1998).

When information is sparse, however, prominence may have a different effect. In such cases,

individuals may not have a long history of engaging with or rigorously considering the firms they are evaluating. Individuals may be more susceptible to the "mere exposure" effect, evaluating frequently encountered objects and situations more positively (Zajonc, 1968). Additionally, individuals may rely on the availability heuristic, assessing the probability of an event occurring by the ease with which past occurrences are recalled (Pollock et al., 2008; Tversky & Kahneman, 1973). In our context, entrepreneurs may thus be naturally inclined to like VCs whom they have heard of from others, and may interpret such prominence as an indication of past successes and high quality. Moreover, given their bounded rationality, entrepreneurs may satisfice in their evaluations by interpreting high prominence as a sufficiently satisfactory indicator that a VC is of high quality.

Yet such a heuristic may be fallible. Indeed, while recognizing that stronger track records may attract greater attention (Deephouse, 2000; Lee et al., 2011; Rindova et al., 2005), prior research on the social construction of reputation has highlighted several ways in which prominence and the information conveyed as part of a firm's prominence may become decoupled from the firm's actual track record (Rindova & Martins, 2012). First, availability cascades, where highly available information is repeated by journalists and other information intermediaries and small differences in attention are amplified over time, may decouple past quality and the attention paid to the firm (Kuran & Sunstein, 1999; Pollock et al., 2008). Such availability cascades also give escalating and disproportionate attention to one aspect of a firm's track record while ignoring other aspects. Second, the media studies literature has suggested that the media often covers topics that present dramatic narratives that are likely to engage and entertain readers, but which may only loosely relate to a firm's track record (Hirsch, 1972; McCartney, 1987; Rindova, Pollock, & Hayward, 2006). Third, some firms may be more skilled than others at courting the media or otherwise enhancing their public prominence by emphasizing select aspects of their track records (Zavyalova, Pfarrer, Reger, & Shapiro, 2012). These social construction mechanisms collectively suggest that entrepreneurs may misperceive the track records of highly prominent VCs by assuming that such high prominence or the information pushed as part of this prominence are sufficient and reliable indicators of high quality.

What about the effect of low prominence? In information-sparse contexts such as ours, where individuals may not be familiar with a specific firm, individuals may interpret a lack of prior exposure to that firm as merely a reflection that they are unfamiliar with the majority of firms in the context. This may in turn limit the extent to which individuals rely on a lack of prior exposure to a firm as a heuristic indicating low quality. Thus, in contrast to how high prominence may encourage the use of an easy, albeit potentially flawed, heuristic related to prior exposure and ease of recall, low prominence may encourage individuals to think more rigorously about what information reliably indicates a firm's quality, and to exert effort in searching for this information. As a whole, we thus expect greater prominence to negatively impact the accuracy of perceptions of firm quality.

Hypothesis 4a. The greater a VC's prominence, the less accurate the entrepreneur's perception of the VC's track record is likely to be.

Some individuals, though, may be less susceptible to the misperceptions that high prominence may introduce. Having a central network position may help individuals better parse information about potential partners that is pushed toward them, somewhat dampening the negative effect that prominence has on evaluation accuracy. In particular, by making it easier to access more complete and reliable information, greater centrality may reduce the attractiveness of relying on prominence as a proxy for quality. Moreover, to the extent that centrality exposes individuals to greater industry information flows, centrality may also foster greater sophistication about industry dynamics (Powell et al., 1996). Accordingly, more central individuals are also likely to be more aware of which information sources are less reliable and how their own evaluations may become biased—and this may make them more careful about how prominence influences their perceptions of a potential partner.

Motivation may similarly dampen the susceptibility of individuals to the misleading effects of prominence. Motivated individuals are less likely to take readily available information at face value (Kahneman, 2011). Accordingly, they may think more critically about the basis for their opinions, and recognize how prominence might bias their perceptions. Motivated entrepreneurs may thus be more likely to seek out additional information and to more critically examine the basis of their beliefs about a potential partner. Overall, our arguments are that an individual's centrality and motivation may encourage more careful and sophisticated evaluations,

thereby dampening the effects of a potential partner's prominence on evaluative misperceptions.

Hypothesis 4b. Greater entrepreneur centrality will dampen the negative relationship between a VC's prominence and the accuracy of entrepreneur evaluations.

Hypothesis 4c. Greater motivation will dampen the negative relationship between a VC's prominence and the accuracy of entrepreneur evaluations.

METHODS

We examine our theory in the context of entrepreneurs evaluating the track records of early-stage U.S. VCs with whom they have met during the process of seeking equity investments. Our focus is on entrepreneurs evaluating VCs for several reasons. First, unlike other frequently studied firm reputation contexts, information on VC track records is not available in a standardized and structured manner. In contrast to public companies that must disclose certain financial data in 10-Ks and hold investor calls, identifying a VC's track record often requires assembling information from various sources[2] (e.g., asking around or visiting webpages to identify a VC's prior investments). Second, institutionalized information intermediaries (e.g., stock analysts) or established rankings (e.g., U.S. News' college rankings) are generally absent in the VC context, thereby contributing to information sparseness in this context. Third, identifying high-quality VCs is important to entrepreneurs because having such a VC increases the likelihood of surviving, being acquired, or having an IPO (Hochberg et al., 2007; Stuart et al., 1999). Fourth, being evaluated as high quality is important to VCs as it helps them attract higher-quality entrepreneurs and obtain desirable investment terms (Hsu, 2004). Finally, a recently developed and validated multi-dimensional composite index of information about a VC's track record integrates many previously studied aspects of VCs' past behaviors and outcomes (Lee et al., 2011; Park & Steensma, 2013; Petkova, Wadhwa, Yao, & Jain, 2014).

We use hybrid research methods to combine quantitative and qualitative analysis to better leverage the strengths and help overcome the limitations of each method (Edmondson & McManus, 2007; Kaplan, 2015). Statistical methods are our primary empirical approach as they are well-suited to disentangling a number of factors that jointly influence evaluative inaccuracy. We take advantage of a unique sample that includes 1,278 quality perceptions of 153 VCs by 785 entrepreneurs that approached these VCs for investments between 2007 and 2010.

We complemented the quantitative data with two waves of qualitative fieldwork to better understand the underlying evaluative processes of entrepreneurs. We used this fieldwork to validate our core behavioral assumptions around entrepreneurs often exerting limited effort in their evaluations, and to more richly understand commonly utilized heuristics. All interviews were recorded and transcribed, and typically ranged from 60 to 90 minutes in length. Our first wave of semi-structured interviews was conducted as part of a larger research project on how entrepreneurs search for and select investors, and included 71 interviews with entrepreneurs and investors. These interviews guided development of the research question and theory. We then conducted a second wave of interviews with new informants to better understand the information entrepreneurs use when evaluating the quality of VCs. This wave consisted of eight interviews with entrepreneurs that had raised their initial funding in the last 12 months, were geographically diverse, and had founders with varying experience. Two additional interviews were conducted with VCs to cross-check their experiences in interacting with and being evaluated by entrepreneurs. We use quotes from the last round of interviews in the results section to help illustrate core behaviors related to our theorizing.

Quantitative Data Sample and Data Sources

Our primary data source on entrepreneurs' perceptions of VC quality is TheFunded.com, a restricted membership community of entrepreneurs actively involved in raising venture capital. This website began in 2007 and allows member entrepreneurs to anonymously rate VCs with whom they have met, and to view other members' ratings of VCs. The ability to rate VCs is restricted to approved entrepreneurs who are the founders or CEOs of ventures; membership is free upon approval. TheFunded's internal surveys indicate that 78% of the members run ventures that have received VC funding. The site has received substantial media coverage in outlets such as TechCrunch.com, *Wired*, the *Wall Street Journal*,

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[2] Note that our fieldwork indicated that entrepreneurs are generally not aware of the data sources utilized by academics to study VC performance, such as VentureOne and VentureXpert, perhaps due to the cost of these products.

Business Week, the *New York Times*, *Inc. Magazine*, and *Entrepreneur Magazine*. This coverage suggests that the site is an important community for entrepreneurs—an assertion bolstered by our fieldwork.

Member entrepreneurs may provide both quantitative ratings and written descriptions of VCs with whom they have interacted. We focus on the quantitative ratings, while utilizing the written descriptions to better understand entrepreneurs' use of the site. The data itself was drawn from a May 2010 snapshot of TheFunded's backend database, which was generously provided by the site. Overall, ratings at the site may be regarded as forms of online consumer reviews, which have a strong influence in other domains on the sales of video games (Zhu & Zhang, 2010), television show viewership (Godes & Mayzlin, 2004), online books sales (Chevalier & Mayzlin, 2006), and movie box office sales (Dellarocas, Zhang, & Awad, 2007; Liu, 2006).

Data from TheFunded is particularly appropriate for testing our theory for several reasons. First, in contrast to the frequently used VentureXpert and VentureOne databases, TheFunded captures entrepreneurs' evaluations of VCs and includes data on both interactions that did result in an investment, and those that did not. Second, in contrast to many surveys of entrepreneur fundraising, TheFunded data allows a relatively large sample of entrepreneur interactions with VCs, which is particularly desirable for contrasting entrepreneur variance in evaluations. Third, the site fosters candor in evaluations because it does not retain any personal information about entrepreneurs; within the internal database entrepreneurs are identified only by a unique number (Huber & Power, 1985). Fourth, because their ratings are provided to other entrepreneurs facing similar challenges, entrepreneurs have substantial incentive to accurately express their impressions of VCs' quality. Overall, this unique dataset allows us to explore previously unexamined issues in how individuals evaluate the quality of firms.

Data from TheFunded was supplemented with additional data on VCs from a number of other sources. To capture the track record of VC firms, we use the Lee–Pollock–Jin (LPJ) VC reputation index (Lee et al., 2011). Consistent with our definition of track record as the observable past behavior and outputs of a firm relative to its competitors, this multi-dimensional composite index integrates various VC firm behaviors and outputs that prior literature has shown to be predictive of the ability of a VC to help ventures develop and innovate (Gompers, 1996; Hochberg

et al., 2007). The index has been validated in prior empirical work (Lee et al., 2011; Pahnke et al., 2015b; Park & Steensma, 2013; Petkova et al., 2014; Pollock et al., 2015), and is discussed further in the Measures section. We also collected Web traffic data from Alexa (owned by Amazon.com), which has been validated in many studies of entrepreneurship (Goldfarb, Kirsch, & Miller, 2007; Matusik, George, & Heeley, 2008). Additionally, the VentureXpert database was used to control for other VC factors.

We focus on perceptions of the *relative* track records, and restrict the sample to VCs that are likely to be in competition with one another. We also restrict the sample to early-stage VCs[3] (79% of the evaluations fit this criteria) since early vs. late-stage VCs focus on offering different benefits to ventures and may be less likely to compete with one another for a given deal (Hallen & Eisenhardt, 2012; Wasserman, 2008). We also ran robustness tests including late-stage VCs (described in the results section). To reduce possible country-level differences, we restricted the study to VCs headquartered in the United States. Finally, to ensure the VCs were viable potential investors whose track record was known, we restricted the sample to active VCs making at least one investment from 2003 to 2009, and that are included in the LPJ VC index.

Measures

Dependent variable. We measured the degree of an entrepreneur's *evaluation accuracy* using the absolute difference between an entrepreneur's ratings of a VC and their actual quality based on the LPJ index. On TheFunded, entrepreneurs rate a VC's track record on a scale from 1–5, with 5 being the most positive score.[4] We focus on ratings of VCs' track records, as this aligns with our research question and extant research on firm reputation. Because the LPJ is a 100-point scale, with 100 indicating the highest quality, we converted the LPJ scale for VCs rated at TheFunded to a five-point Likert scale with the same distribution of ratings as the entrepreneur ratings of track record at TheFunded (e.g., 16.9%, 17.4%, 21.7%, 27.8%, and 16.1% of the sampled ratings in buckets 1 to 5, respectively). VCs with an

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[3] We define early-stage VCs as those as identified in the VentureXpert database as focused on "Early Stage," "First-Stage Financing," "Seed," or "Start-up Financing."

[4] In the three instances where an entrepreneur rated the same VC twice, we used only the first review in our analysis.

LPJ index of 1.45 to 7.57 were assigned a score of 1, those with an LPJ index of 7.64 to 12.91 were assigned a score of 2, those with a score of 13.21 to 27.4 were assigned a score of 3, those with an LPJ index of 27.55 to 47.00 were assigned a score of 4, and those with an LPJ index of 47.22 to 100 were assigned a score of 5. Underlying this conversion approach is the recognition that entrepreneurs have access to the other ratings at TheFunded, and are being asked to rate a VC relative to the distribution of other ratings. For ease of interpretation, we then measured evaluation accuracy as 4 minus the absolute difference. This ensures that positive values indicate greater accuracy. The result is an ordinal measure that ranges from 4 (highest accuracy) to 0 (lowest accuracy). We also explored an alternative approach to address differences in granularity across the two scales; we took the absolute difference of the *Z*-score versions of each scale and used the absolute difference. As discussed in the results, this yielded highly similar results.

The LPJ index is a longitudinal, composite index that captures a VC's track record[5] using a five-year moving average, integrating multiple data points that are validated in research on VC quality (Gompers, 1996; Hochberg et al., 2007). The index encapsulates numerous facets of VCs' past behaviors and performance used in prior research to capture VC quality, and has been found to be associated with the ability of a VC to enhance venture development and legitimacy (Lee et al., 2011) and to influence a venture's degree of innovation (Pahnke et al., 2015b; Park & Steensma, 2013); additionally, the index has been found to be predictive of VC behavior (Petkova et al., 2014). The LPJ index captures a VC's performance and behavior by establishing the values for each of six equally weighted factors using five-year moving averages: the total number of ventures invested in, the total dollar amount invested, the number of portfolio companies taken public, the total dollar amount of funds raised to invest, the average number of investment funds, and the age of the VC firm in the focal year (which is updated annually).

Independent variables. For Hypothesis 1, we measured an *entrepreneur's centrality* as their position in the broader VC industry network. As with many archival studies, we are unable to directly observe an entrepreneur's full social network in our data. However, VCs almost exclusively restrict their interactions to entrepreneurs with whom they have either directly worked or to whom they have been introduced by a trusted source; past research has indicated that VCs rely on such ties so as to better focus on higher-quality deals and trustworthy entrepreneurs (Kirsch, Goldfarb, & Gera, 2009; Shane & Cable, 2002). Thus, an entrepreneur that talks to more VCs is more connected to people connected to VCs. This was supported in our fieldwork, with almost every entrepreneur–VC meeting arising from a mutual acquaintance's introduction. Likewise, the more an entrepreneur talks to VCs that are spread across the industry network, the more an entrepreneur's connections span the industry network. We leverage these features of our context to infer an entrepreneur's social network, taking an entrepreneur's meeting with a VC as a proxy for an entrepreneur's own network providing direct or indirect access to that VC.

We measured an entrepreneur's network position in a two-step manner. First, we established the entrepreneur's direct connections to VCs based on which VCs they rated, placing a tie between an entrepreneur and each VC rated met with (rated) up through the 90 days beyond the current rating.[6] We then followed prior literature and inferred the position of these VCs in the broader industry network using the network of syndication ties between VCs that had jointly invested in other ventures during the prior five years (Guler, 2007; Hallen, 2008; Hochberg et al., 2007). We used the network resulting from this process to calculate a variant of closeness centrality adapted to work on disconnected graphs, with closeness centrality chosen as it captures access to different parts of a network (Freeman, 1979). We measured centrality as $1 / n * \Sigma (1 / \text{path distance}_i)$, where n is the total number of VCs investing during the focal year and path distance$_i$ is the shortest path length between the entrepreneur and each VC ($1 / \text{path distance} = 0$ for disconnected entrepreneur–VC pairs). While similar to Freeman's original measure of $1 / \Sigma \text{path distance}_i$, our modification may be calculated on disconnected graphs. One downside of closeness centrality measures, though, is that they give substantial weighting to the number of direct

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[5] Note that Lee et al. (2011) referred to their index as a measure of reputation, resting on the assumption that these signals have a substantial influence on how a VC is perceived. Because we have access to perceptual data, we refer to the index as measuring objective track records—though we return in the discussion to consider how our research helps validate the LPJ index.

[6] We chose the 90-day period as our interviews indicated that entrepreneurs had known the individuals introducing them to VCs for at least this long. However, robustness tests run using only prior meetings produced highly consistent results.

ties held by an actor. As reasons apart from network reach may also influence the number of VCs with whom an entrepreneur meets, we regressed closeness centrality on the number of ratings performed by the entrepreneur (up through the 90-day window) and took the residual as our measure of entrepreneur centrality to better disentangle the overall network reach of an entrepreneur from their number of ratings (using the unregressed measure produced similar results). Higher values for this measure indicate more central entrepreneurs.

For Hypotheses 2a and 2b, we measured motivation in two ways. First, we measured motivation based on whether the entrepreneur was presented with information on how other members of TheFunded have rated a VC. We measured this based on whether there were *no prior community ratings* at the time the entrepreneur performed their rating. In such situations, entrepreneurs are not able to avail themselves of readily available summary information from others, and thus may be forced to exert greater cognitive effort in their evaluations. This binary measure took on a value of 1 when no such prior ratings were available (high motivation) and 0 otherwise (low motivation).

Second, we measured *entrepreneur received offer* as a binary variable with a value of 1 if an entrepreneur reported at TheFunded that they received an offer from the VC currently being rated. The logic underlying this measure is that since entrepreneurs may meet with several VCs for every offer they ultimately receive (Bruno & Tyebjee, 1986; Hallen & Eisenhardt, 2012), entrepreneurs may reserve extensive evaluative effort until after a VC makes an offer. To construct this variable, we coded the optional additional information section where entrepreneurs indicated whether they had received an offer from that VC. Where no such information was provided, we conservatively assumed the entrepreneur had not received an offer.[7]

For Hypotheses 3a–3c, we measured *VC track record* using the LPJ index. For Hypotheses 4a–4c we measured *VC prominence* as the Web traffic received by the VC firm in the 30 days preceding the evaluation

(and ending on the day prior to the evaluation). Web traffic data are an attractive measure of prominence in this context as such data capture the interest of audiences in a VC that may arise from a variety of sources (e.g., formal news coverage, word-of-mouth gossip, etc.). We measured Web traffic as the 30-day average of daily page views of a VC's website (in millions), and logged the measure to reduce skew.

Control variables. We also included controls for other factors that might influence the accuracy of entrepreneur evaluations. First, we controlled for *multiple review entrepreneur*, which took on a value of 1 if the focal entrepreneur provided multiple evaluations that met the study's criteria. As entrepreneurs often try to obtain introductions to multiple investors, either to increase their chances of receiving an offer or to obtain a stronger negotiating position (Hallen & Eisenhardt, 2012), this measure captures whether an entrepreneur has the support of sufficient network connections to obtain multiple introductions to potential investors.

Since TheFunded displays the average of prior ratings of a VC, and as online reviews have been found to influence consumer purchasing in settings such as video games, books, and movie tickets (Chevalier & Mayzlin, 2006; Li & Hitt, 2008; Zhu & Zhang, 2010), we included *online community accuracy* to control for how displayed average ratings may influence an entrepreneur's own perceptions of a VC. This measure was constructed similar to our dependent variable, though using the average prior ratings of a VC's track record up through the day prior to the focal evaluation in place of the entrepreneur's rating. Where no prior ratings had been given, the measure was set to the mean value across the rest of the sample.

We created proxies for geographic location, as entrepreneurs do not provide this information on TheFunded. Prior literature has suggested that Silicon Valley (SV) and Boston are dense entrepreneurial hubs with particular entrepreneurial norms (Katila, Rosenberger, & Eisenhardt, 2008; Saxenian, 1994). We measure *entrepreneur primarily SV* as the percentage of the entrepreneur's ratings that are of VCs in Silicon Valley (San Francisco, Alameda, San Mateo, and Santa Clara counties), and *entrepreneur primarily Boston* as the percentage of their ratings that are of VCs in Boston (Middlesex, Norfolk, Suffolk, or Essex counties).

To account for industry differences, we included a dummy variable, *non-computer related,* to control for whether the VC specialized in an industry other than "Computer Related" as specified in VentureXpert's six-industry classification scheme

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[7] Receiving an offer may also indicate repeated interactions between an entrepreneur and a VC. Our interaction effects for Hypothesis 3 help us test whether such direct interactions are the primary driver of our offer-related results (versus motivation). Specifically, a stronger direct tie (due to more interaction) would not be expected to yield a positive interaction between having an offer and a VC's track record, whereas our motivation-related arguments do suggest such a positive interaction.

(including dummies for each industry produced similar results, but also introduced multicollinearity in the estimates according to condition index tests). We also included yearly dummy variables to account for variations in the venture fundraising climate and the broader economic climate at the time of the evaluation.

RESULTS

Qualitative Evidence

While our quantitative perceptual data are well suited for examining shifts in entrepreneurs' evaluative accuracy, they do not directly capture the evaluative processes of entrepreneurs. Here, our qualitative fieldwork is helpful in validating our behavioral assumptions. Consistent with prior literature and our assumptions, our interviews indicated that evaluative processes are highly consistent with the core assumptions of bounded rationality (see Table 1 for illustrative quotes). First, entrepreneurs discussed engaging in limited information gathering about VCs, and many mentioned gathering only a fraction of the metrics captured in the LPJ index. Second, and consistent with our centrality arguments, entrepreneurs that had raised multiple rounds of investment spoke of having developed better networks over time that made it easier to evaluate VCs. Similarly, well-connected entrepreneurs also showed high awareness of a VC's prior investments and their performance, their financial resources, and the specific ways in which the VC had previously aided ventures. Third, and consistent with our entrepreneur motivation arguments, entrepreneurs spoke of staging their evaluations, and engaging in additional research as the possibility of an investment from a VC became more credible. Overall, these interviews triangulated and further validated the behavioral assumptions underlying our theory (Jick, 1979).

The interviews also provided a richer understanding of factors contributing to entrepreneurs' bounded rationality in evaluations. Many entrepreneurs referenced how busy they were with other entrepreneurial tasks, such as gaining customers, hiring, and establishing routines. As one entrepreneur said, "We were running so hard to get data points and traction that spending too much time looking at VC firms that would probably say 'no thanks' would be a waste of time." Others indicated that they had not realized how poor their proxies could be in evaluating VCs. For example, one entrepreneur said he

had done "very little" research, and "not enough" in retrospect. Many entrepreneurs purposefully pursued a strategy of satisficing but often later believed their limited knowledge resulted in premature satisficing. As a whole, our interviews indicated that while entrepreneurs might suffer from subconscious cognitive biases, many were intentional in gathering limited information for evaluations.

We also found that the processes entrepreneurs utilized to evaluate VCs often closely resembled the decision-making heuristics highlighted by cognition scholars (Cialdini, 1993; Kahneman, 2011; Tversky & Kahneman, 1974) (see Table 2 for illustrative quotes). For instance, many entrepreneurs presumed personal interactions were highly representative of a VC's past track record, reflecting the "halo effect" and the tendency of individuals to rely on general overall impressions to rate specific characteristics (Nisbett & Wilson, 1977; Sine, Shane, & Gregorio, 2003). Exemplifying the social proof heuristic, entrepreneurs referenced relying on the introductions and recommendations of others (Cialdini, 1993; Rao et al., 2001). Supporting the socially constructed nature of firm reputations (Rindova & Martins, 2012), entrepreneurs also referenced relying on what they had heard about a VC—though when pressed, they generally only knew whether a VC was regarded as "top tier" or not, and were often unable to provide much factual evidence around the VC's past behavior or performance. Overall, our interviews suggest that entrepreneurs often use a handful of evaluative heuristics that likely systematically bias their evaluations, though the use of such heuristics may be more pronounced under certain conditions.

Quantitative Results

We draw upon our quantitative sample of entrepreneur perceptions to test our deductive framework. Table 3 reports the descriptive statistics and correlations for the sample of 1,278 ratings of VCs' track records. Consistent with existing literature (Rindova et al., 2005), some measures exhibit moderate correlations (e.g., VC track record and VC prominence have a 0.59 correlation) and many of our models include interactions. Accordingly, we checked for possible multicollinearity bias using both variance inflation factors (VIFs) and condition indices. Models were generally below the traditional threshold of 10 for VIFs and 30 for the condition indices (e.g., the direct effects model had a maximum VIF of 2.27 and a condition index of 25.2). The exception were models involving interactions of VC

TABLE 1
Illustrations of Core Behavioral Assumptions Behind Theory

Theoretical assumption	Illustrative quotes
Entrepreneurs engage in limited information gathering	*Interviewer:* What research did you do on the VCs? *Entrepreneur:* Very little [laughs] And not enough. If I had had more data about [VC track records] I wouldn't have gone with the lower-level firms... you think you are helping yourself but in the long run you're hurting yourself. *Interviewer:* Did you do any research on these VCs? *Entrepreneur:* No, just [my overall] business expertise. I worked in the valley, lived in Menlo Park, and I knew some of these guys outside of work so it was a situation of simply connecting. I didn't do research on [VC X] because I knew they were involved in infrastructure, and you need someone who understands technology so that when you pitch, they know the business and you don't need to educate them.
Improved evaluations as better networks and experience developed	When I first started my career 22 years ago I didn't have that network [to research VCs]—but now I do that through LinkedIn, see who they know, and what their reputation is. At each level—A Round, B Round, C Round—the level of research has increased dramatically [as I have become more experienced and connected]. Now we are doing a second round and there's much more due diligence [that we are doing].
Staged evaluations or gathered information when motivated	We would wait until we heard back from a VC and if they were interested—then I'd look into them more. We were running so hard to get data points and traction that spending too much time looking at VC firms that would probably say "No Thanks" would be a waste of time. I would research most of them before the meetings, just maybe 20–30 minutes looking at their website. I knew people who had them as an investor, that's all the diligence we did before the term sheet. Once you get the term sheet you're focused on who's the partner? Am I giving you a board seat? So things were really different before and after the term sheet.

prominence—for example, model 6, which adds the interaction of entrepreneur centrality × VC prominence has a maximum VIF of 19.1 and a condition index of 28.8; exploratory analyses indicated that this arises from the correlation between VC track record and VC prominence (0.59). Accordingly, we also ran models where VC prominence was orthogonalized relative to VC track record using Stata's orthog command; this yielded highly similar estimates yet brought down the maximum VIF and condition index scores to 1.7 and 15.3, respectively. As this indicates that the original estimates are unlikely to be biased, we present the original (unorthogonalized) estimates for clarity and simplicity.

Table 4 presents ordered logit regressions of the accuracy of entrepreneur ratings of VCs' track

TABLE 2
Illustrations of Evaluative Heuristics

Heuristic	Illustrative quotes
Relying on impressions from personal interactions (halo effect)	[Beyond what we heard from others], the second factor was the interpersonal experience with the VCs during the course of those meetings. It's how we feel about them coming out of the room. There's lots of gut-feel about whether it's the right fit or not.
Relying on introductions or opinions of others (social proof)	So my advisors thought we should go to [VC X], but why I don't really know—maybe convenience, local, reputation.... One thing [we relied on] is the personal recommendations of colleagues. *Interviewer:* Other than your law firm was there any other research that you did? *Entrepreneur:* No, that was it.
Relying on collective social perceptions or prominence	I didn't do research on them. No, I knew them—they were marquee firms. [We selected this VC because] they were the biggest firm and had the most gravitas. I wanted it to be [VC X] because they're top tier...so we pitched them.

records. We used ordered logit regressions because our dependent variable takes on discrete, ordered values from 0 to 4, and corrected for observation clustering by estimating robust standard errors clustered at the level of the entrepreneur. We argued in Hypothesis 1 that entrepreneurs with more central network positions will be more accurate in their evaluations. We find support for this hypothesis, as the *entrepreneur centrality* coefficient is positive and highly statistically significant ($p = 0.001$) in the direct effects model (model 2). Moving from lowest to highest centrality is associated with a shift from a 9.8% likelihood of a perfectly accurate evaluation to a 27.7% likelihood (all effect sizes were calculated using Stata's margins command, taking all other measures at mean values). It is notable that the least central entrepreneurs have an accuracy below what would be expected even if they were selecting ratings randomly. Exploratory analyses indicated that lower-centrality entrepreneurs (i.e., the bottom 10% of the sample) were on average *overrating* VCs by about 1.3; consistent with prior literature on entrepreneur optimism (Camerer & Lovallo, 1999), we believe this indicates that entrepreneurs may naturally overestimate the quality of the VCs interested in meeting with them—but that the information provided by higher centrality dampens such biases.

In Hypotheses 2a and 2b we argued that entrepreneurs will be more accurate when they are more motivated. We find support for Hypothesis 2a, as the coefficient for *no prior community ratings* is positive and significant ($p = 0.049$) in the direct effects model (model 2). Having no prior ratings available increases the likelihood of a perfectly accurate evaluation from 20.0 to 25.4%. We find weak support for Hypothesis 2b, as the coefficient *entrepreneur received offer* is positive and marginally significant ($p = 0.076$) in the direct effects model (model 2). Receiving an offer from a VC shifts the likelihood of a perfectly accurate evaluation of that VC from 20.5 to 25.2%. It is interesting to note that while these motivation measures have similar-magnitude effects, the two have a low correlation of 0.02—providing confidence in the effect of entrepreneur motivation.

In Hypothesis 3a we argued that entrepreneurs will be more accurate in evaluating VCs with stronger track records. Supporting this, the coefficient for VC track record is positive and highly significant in model 2 ($p = 0.008$). In terms of magnitude, moving from the lowest to the highest level of VC track record is associated with a shift from a 16.3% likelihood to a 37.4% likelihood of a perfectly accurate evaluation. We return to the contingencies introduced in Hypotheses 3b and 3c shortly so as to first consider

TABLE 3
Descriptive Statistics and Pearson Correlations for ratings Sample

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Evaluation accuracy	2.66	1.08	1.00											
(2) Entrepreneur centrality	0.00	0.60	0.13	1.00										
(3) Entrepreneur received offer	0.09	0.28	0.05	0.00	1.00									
(4) No prior community ratings	0.17	0.38	0.05	0.00	0.02	1.00								
(5) VC track record	27.13	21.53	0.10	-0.07	-0.01	-0.20	1.00							
(6) VC prominence	10.19	2.35	0.04	0.42	-0.03	-0.37	0.59	1.00						
(7) Multiple review entrepreneur	0.67	0.47	0.07	0.36	-0.01	0.06	0.00	0.01	1.00					
(8) Online community accuracy	2.94	0.68	0.28	0.35	-0.01	0.00	0.03	0.11	0.00	1.00				
(9) Entrepreneur primarily SV	0.46	0.41	-0.05	0.02	-0.04	-0.16	0.07	0.13	0.06	-0.04	1.00			
(10) Entrepreneur primarily Boston	0.21	0.34	0.11	0.04	0.05	0.04	0.02	0.12	-0.04	0.09	-0.47	1.00		
(11) Non-computer VC	0.08	0.27	0.01	-0.01	-0.02	0.16	-0.15	-0.35	0.12	-0.06	0.04	-0.08	1.00	
(12) Ratings year[a]	2007.85	0.92	0.05	-0.27	0.01	0.11	0.04	-0.22	-0.12	0.03	-0.07	0.07	0.09	1.00

Notes: $n = 1278$ and represents all ratings in TheFunded meeting the study's criteria as of May 2010.
[a] Ratings year is presented here as a continuous variable for clarity, though we include unreported year dummies in the regression models in Table 4 to better account for nonlinear effects across years.

TABLE 4

Ordered Logit estimates of Entrepreneur Rating Accuracy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Entrepreneur centrality (Hypothesis 1)		0.35**	0.63**	0.35**	0.35**	0.84+	0.36**	0.35**	0.62**
		(0.11)	(0.15)	(0.10)	(0.11)	(0.46)	(0.11)	(0.11)	(0.15)
No prior community ratings (Hypothesis 2a)		0.31*	0.30+	-0.04	0.30+	0.31+	-0.22	0.30+	-0.03
		(0.16)	(0.16)	(0.23)	(0.16)	(0.16)	(0.57)	(0.16)	(0.24)
Entrepreneur received offer (Hypothesis 2b)		0.27+	0.28+	0.27+	-0.22	0.28+	0.27+	-0.79	-0.18
		(0.15)	(0.15)	(0.15)	(0.32)	(0.15)	(0.15)	(0.74)	(0.31)
VC track record (Hypothesis 3a)		0.01**	0.02**	0.01*	0.01*	0.01**	0.01**	0.01**	0.02**
		(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
VC prominence (Hypothesis 4a)		-0.06+	-0.09+	-0.08*	-0.07+	-0.07*	-0.08*	-0.08*	-0.11**
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
VC track record × entrepreneur centrality (Hypothesis 3b)			-0.02*						-0.02*
			(0.01)						(0.01)
VC track record × no prior community ratings (Hypothesis 3c)				0.02+					0.02+
				(0.01)					(0.01)
VC track record × entrepreneur received offer (Hypothesis 3c)					0.02+				0.02+
					(0.01)				(0.01)
VC prominence × entrepreneur centrality (Hypothesis 4b)						-0.05			
						(0.05)			
VC prominence × no prior community ratings (Hypothesis 4c)							0.06		
							(0.06)		
VC prominence × entrepreneur received offer (Hypothesis 4c)								0.11	
								(0.07)	
Multiple review entrepreneur	0.28*	0.11	0.11	0.12	0.11	0.12	0.11	0.11	0.12
	(0.11)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Online community accuracy	0.73**	0.77**	0.75**	0.77**	0.78**	0.77**	0.77**	0.78**	0.77**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Entrepreneur primarily SV	0.06	0.11	0.06	0.11	0.10	0.10	0.11	0.11	0.05
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Entrepreneur primarily Boston	0.50**	0.53**	0.49**	0.49**	0.52**	0.54**	0.52**	0.52**	0.46**
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
Non-computer VC	0.14	0.08	0.02	0.06	0.08	0.04	0.07	0.07	0.00
	(0.17)	(0.19)	(0.19)	(0.19)	(0.18)	(0.18)	(0.19)	(0.18)	(0.19)
Ordered logit cutoffs									
Cutoff 1	-0.90**	-1.22*	-1.52**	-1.37**	-1.28**	-1.32**	-1.38**	-1.34**	-1.71**
	(0.35)	(0.48)	(0.47)	(0.49)	(0.49)	(0.48)	(0.51)	(0.50)	(0.48)
Cutoff 2	0.90**	0.60	0.32	0.45	0.55	0.51	0.44	0.49	0.13
	(0.32)	(0.47)	(0.46)	(0.48)	(0.48)	(0.46)	(0.51)	(0.49)	(0.47)
Cutoff 3	2.06**	1.80**	1.52**	1.64**	1.75**	1.71**	1.64**	1.68**	1.34**
	(0.33)	(0.48)	(0.47)	(0.49)	(0.49)	(0.47)	(0.52)	(0.50)	(0.48)
Cutoff 3	3.89**	3.67**	3.40**	3.52**	3.63**	3.58**	3.51**	3.56**	3.23**
	(0.35)	(0.50)	(0.48)	(0.51)	(0.50)	(0.49)	(0.53)	(0.51)	(0.49)
n	1278	1278	1278	1278	1278	1278	1278	1278	1278
Chi²	81.37	102.63	106.90	103.92	112.54	103.46	104.59	110.98	119.20

Notes: Robust Standard Errors are in parentheses. Model 9 includes all statistically significant interactions from Models 3 through 8. Each model includes unreported year dummies.

+ p < 0.10
* p < 0.05
** p < 0.01; t-tests are two-tailed.

all direct effects before considering interaction effects (we present all direct effects in a single model to avoid omitted variable bias).

Hypothesis 4a posited a negative relationship between the prominence of a VC and an entrepreneurs' accuracy in evaluating the VC's track record. We find support for this hypothesis, as the coefficient is negative and marginally statistically significant in the direct effects model (model 2) ($p = 0.079$), with the significance rising in later models after accounting for additional interactions (e.g., $p = 0.003$ in the full model [model 9]). Going from the lowest to the highest level of prominence in model 2 decreases the likelihood of a perfectly accurate evaluation from 29.0 to 17.3%.

Complementing these direct effects arguments, we also argued that the network positions and motivation of entrepreneurs may amplify the accuracy-increasing effects of VC track record (Hypotheses 3b and 3c) while dampening the accuracy-decreasing effects of VC prominence (Hypotheses 4b and 4c). We present interactions in a stepwise manner to reduce possible multicollinearity around multiple interactions with a single variable being included simultaneously, and also present a full model (model 9) that includes all statistically significant interaction effects (we obtain similar results, though of slightly lower statistical significance, when we also include interactions that were not significant on their own). Additionally, since interactions in nonlinear models may be difficult to interpret, we graph statistically significant interactions from models 3 through 8 in Figures 1a to 1c, and estimate the likelihood of perfect evaluative accuracy (accuracy = 4) using Stata's margin command.

In Hypothesis 3b, we suggested that greater entrepreneur centrality would amplify the positive relationship between VC track record and entrepreneur evaluative accuracy. While the interaction is statistically significant ($p = 0.017$) in model 9, Figure 1a surprisingly reveals that greater entrepreneur centrality actually dampens the positive relationship—and that at very high levels of VC track record (about the top third of the sample), high centrality actually reduces accuracy below what would otherwise be expected. One possible interpretation of this is that highly central entrepreneurs may exclusively rely on their immediate networks and assume that relevant information about a firm will naturally flow to them; accordingly, central entrepreneurs may not gather additional information. We return to this possibility in the discussion.

Hypothesis 3c posited that greater motivation would increase the positive relationship between VC track record and the accuracy of evaluating entrepreneurs. We find weak support for this relationship, as the

interactions of *VC track record* with *no prior community ratings* and *entrepreneur received offer* are marginally significant in the full model 9 ($p = 0.089$ and $p = 0.076$, respectively). We also note that the magnitudes of these effects are relatively large; for instance, for VCs with a track record of 60, not having prior community ratings available increases the likelihood of a perfectly accurate evaluation from 33.2 to 57.8% (Figure 1b), while receiving an offer increases the likelihood from 35.6 to 56.1% (Figure 1c).

We argued in Hypotheses 4b and 4c that entrepreneur centrality and motivation would dampen the accuracy-decreasing effects of high VC prominence. We do not, however, find support for either hypothesis, as none of the interactions with VC prominence are statistically significant in models 6–8 (these interactions were also nonsignificant when included jointly with the VC track record interactions). We interpret this as indicating that all entrepreneurs may be equally susceptible to the accuracy-inhibiting effects of high prominence, a possibility we return to in the discussion. The nonsignificance of the interactions between VC prominence and the entrepreneur-level factors suggests that prominence may also have a dominant effect over other information. To further probe this, we interacted VC prominence with VC track record. The coefficient of the interaction was negative and statistically significant ($p = 0.049$), and we have graphed this relationship in Figure 1d. Consistent with our argument, this graph reveals that the positive relationship between VC track record and evaluative accuracy is dampened as VC prominence increases. In terms of magnitude, moving from -1 *SD* prominence to $+1$ *SD* prominence at a VC track record of 60 dampens the likelihood of a perfectly accurate evaluation from 48.7 to 23.0%. We return to these findings in the discussion.

Additional analyses. We also ran a number of robustness tests. First, we explored the sensitivity of the results to our estimation approach. We explored controlling for entrepreneur heterogeneity using the Generalized Estimating Equations (GEE) regression method[8] (Liang, Zeger, & Qaqish, 1986). The GEE method accounts for autocorrelation arising from some entrepreneurs providing ratings of multiple VCs without requiring the strong assumption that unobserved entrepreneur-specific effects are uncorrelated with the included regressors (unlike

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[8] Specifically, we ran GEE estimates using the Gaussian distribution and the exchangeable correlation structure to capture within-entrepreneur effects, with the latter advantageously allowing the inclusion of entrepreneurs providing only a single review.

FIGURE 1
Interaction of VC Track Record with moderators FIGURE 1A VC Track Record × Entrepreneur Centrality FIGURE 1B VC Track Record × No Prior Community Ratings (Motivation) FIGURE 1C VC Track Record × Entrepreneur Received Offer (Motivation) FIGURE 1D VC Track Record × VC Prominence
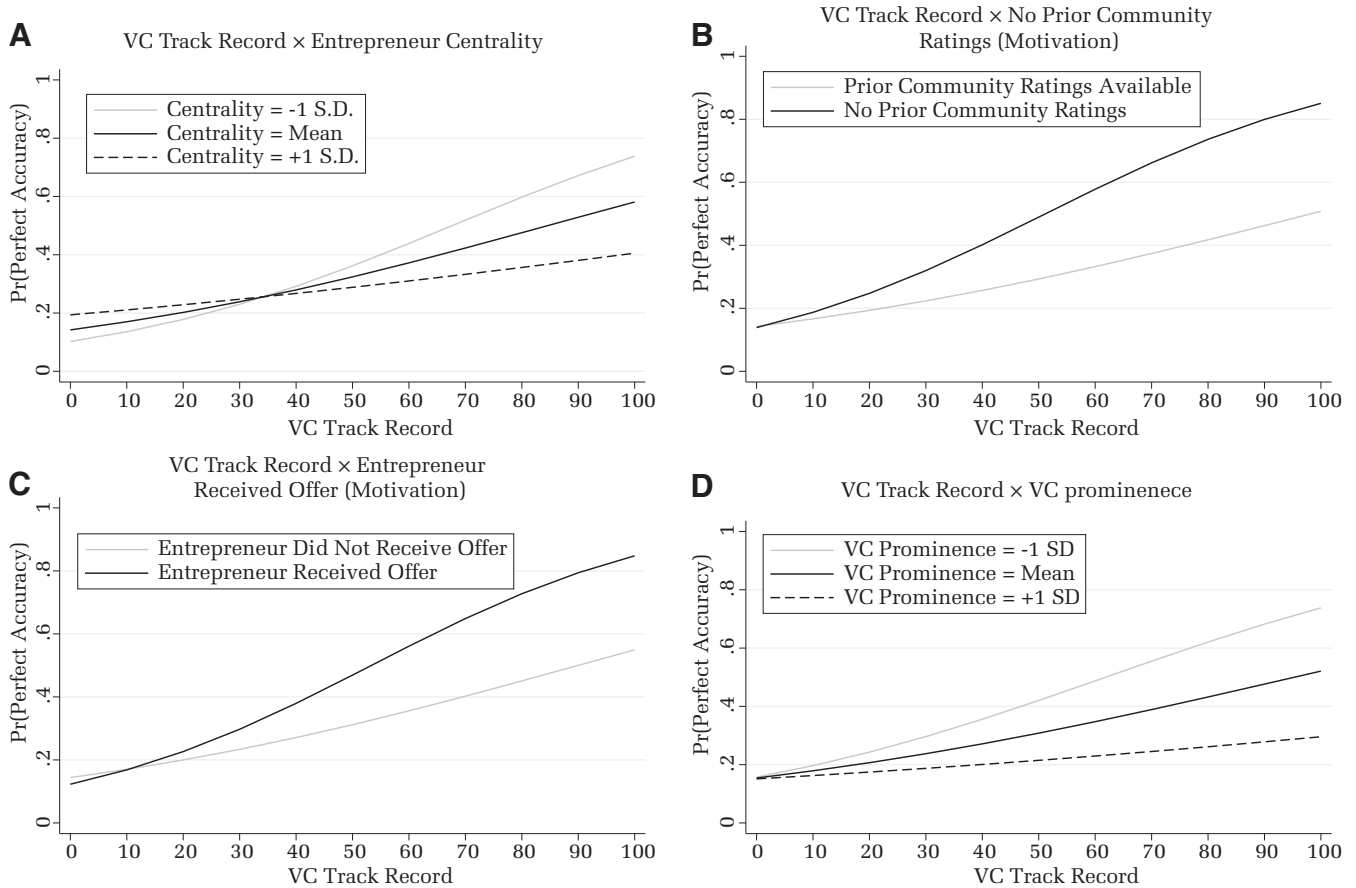
Notes: All figures depict the probability of a perfectly accurate evaluation (accuracy = 4) at the given levels of VC track record and the moderator variables, with all other measures at their mean levels.

random effects approaches); the GEE estimates yielded results similar to those reported.[9]

To account for possible bias arising from entrepreneurs nonrandomly rating only some VCs (e.g., different groups of entrepreneurs rating different VCs), we used a two-stage Heckman-selection model. To do this we created the set of potential dyads between entrepreneurs and evaluated VCs. Our first-stage selection probit contained all measures from the primary analysis, except for entrepreneur received offer

(which could perfectly predict that a review had occurred) and online community accuracy (which we replaced with average community rating of the VC at TheFunded, as the relative ranking is more likely to drive with whom entrepreneurs seek to meet). We included dummies for the number of employees at the VC firm as the exclusion restriction (with categories of 1–5 employees, 6–9, 10–15, more than 16, and number not listed). Following prior theory on entrepreneur–VC interactions being primarily local (Sorenson & Stuart, 2001), we measured geographic proximity by the average inverse distance between the rated VC and each of the other VCs that the entrepreneur rated (entrepreneurs with only a single rating were assigned the mean value for entrepreneurs with two ratings). To capture assortative matching between entrepreneurs and VCs (Hallen, 2008), we interacted entrepreneur

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[9] Note that we did not use entrepreneur fixed effects models as our data has relatively little within-entrepreneur variance for entrepreneur-level factors or VC-level factors (the latter being consistent with entrepreneurs primarily focusing on VCs of a given quality (Hallen, 2008); we recognize this as a limitation of the current study, and an opportunity for future research.

centrality and VC reputation. Nearly all coefficients in the first stage were significant.[10]

The resulting inverse Mills ratio was not statistically significant in the second-stage models. However, adding the inverse Mills ratio did introduce possible multicollinearity bias, as indicated by a condition index test (CI = 77.36, above the traditional threshold of 30); our analyses revealed that this was due to high correlations between the inverse Mills ratio and VC prominence (r = −0.738) and VC reputation (r = −0.641). We do note that adding the inverse Mills ratio produced relatively little change in the coefficients of the focal measures (i.e., no "bouncing betas"). We interpret this Heckman selection robustness test as suggesting that our presented models are unlikely to be significantly biased by entrepreneurs rating some VCs but not others, though our results are less conclusive for coefficient estimates of VC track record and VC prominence.

To complement our Heckman selection robustness test (and given the multicollinearity issues between the inverse Mills ratio and some of our measures), we also ran a separate robustness test to further explore the extent to which our results might be biased by assortative matching between high-centrality entrepreneurs and VCs with strong track records. In this alternative test we assumed that entrepreneurs rate a VC relative to other VCs they may reach through their network based on the entrepreneur's centrality level (versus relative to all VCs rated at TheFunded). We explored this possibility by constructing a "relative centrality" version of our dependent variable; we did so by breaking our sample into five quantiles based on entrepreneur centrality, and then using the observed frequencies of 1 to 5 ratings by entrepreneurs in each centrality quantile to determine how to map the LPJ index to a 1 to 5 scale for that centrality quantile.[11]

Estimates of the alternative evaluation accuracy measure produced results that are broadly consistent with those in Table 4. The main exception was that the interaction of VC track record and entrepreneur centrality (Hypothesis 3b) was no longer statistically significant—though we note that this is not entirely unexpected, as the rescaling of the LPJ index by entrepreneur centrality quintiles already adjusts accuracy based on the interplay of entrepreneur centrality and VC track record. We also ran ordinary least squares (OLS) estimates of the full model 9 using both the original and centrality-relative evaluation accuracy to better understand relative model fit. Whereas the original full model had an R^2 of 0.129, the alternative estimate had a lower R^2 of 0.081. Overall, we interpret the alternative test as indicating (a) that our results are unlikely to be biased by sample selection in the form of entrepreneurs being more likely to rate certain VCs over others, and (b) that given the lower model fit of the alternative test, entrepreneurs are likely to be considering a wide range of comparison VCs when evaluating the track record of a focal VC (versus only VCs they can reach based on their centrality).

Another possible concern is that our results could be an artifact of floor or ceiling effects, with the extent of inaccuracy constrained at more moderate levels of VC track records. We explored this possibility in several ways. First, were such floor and ceiling issues introducing substantial bias, we would expect an inverted-U relationship between VC track record and evaluative accuracy. However, we did not observe such an inverted-U within the range of VC track record when including a quadratic term. Second, we used a binary DV that took on a value of 1 if the accuracy was within one bucket and 0 otherwise, and used logit models in our estimates; these results were highly consistent with those reported, with the exception of *no prior community ratings* losing significance as both a direct effect and in interactions (indicating that the measure may primarily explain differences among more extreme levels of inaccuracy). Together, these tests indicate that our results are unlikely to be an artifact of floor or ceiling issues around our dependent variable.

While we largely theorized about linear relationships, we also explored for possible nonlinearities by running models including quadratic terms for entrepreneur centrality, VC track record, and VC prominence. For entrepreneur centrality, we found a negative and significant quadratic term ($p = 0.031$) and a marginally significant and positive linear term ($p = 0.099$). Graphing the effect reveals that the

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[10] Entrepreneurs are more likely to rate a VC ($p < 0.05$) if the VC has a stronger track record, the VC has greater prominence, the entrepreneur performs multiple ratings, the VC has more employees (all dummies significant), and the VC is geographically proximate to the other VCs the entrepreneur rates; there is also a positive interaction of the VC track record and entrepreneur centrality. An entrepreneur is less likely to rate a VC ($p < 0.05$ unless noted) if the VC has not been rated before, the entrepreneur rates a higher percentage of Silicon Valley ($p < 0.10$) or Boston VCs, the VC is outside of the computer industry, or the entrepreneur is more central. Average community rating of the VC at TheFunded and year dummies were not significant.

[11] We are especially thankful to an anonymous reviewer for suggesting this robustness test.

impact of centrality largely reaches a plateau around a centrality of 0.5 (i.e., top 20% of the sample), but that there is not a substantial decline for higher centralities. This suggests a positive but diminishing effect of centrality on accuracy that maxes out at the top quartile, rather than a strictly linear effect. We return to the implications of this in the Discussion section. For VC track record, while the quadratic term is significant ($p < 0.01$), the peak effect of VC track record is well outside of the range of the variable and thus no curvilinear effect is present. For VC prominence, the quadratic term was not significant, supporting our argument that greater prominence decreases accuracy (versus the alternative that extremely low and high prominence both decrease accuracy).

We also explored the robustness of our choice of how to compare the highly granular VC track record measure with the coarser measure of entrepreneur ratings. To do so, we constructed an alternative version of our dependent variable by converting VC track record and entrepreneur ratings to *Z*-scores and capping each set of *Z*-scores so they had the same minimum and maximum scores. The *Z*-scored accuracy measure was then calculated as the absolute value of the difference between the two, and the models estimated using Tobit regressions to account for the maximum and minimum levels of the accuracy measure. The resulting estimates were highly similar, the exception being that *entrepreneur received offer* was not significant as a direct effect and the interaction of *VC track record × no prior community ratings* was not significant. Overall, by building on different assumptions of how to compare the entrepreneur ratings and the LPJ index, these *Z*-score estimates help bolster confidence in the robustness of our results.

We also explored the robustness of independent variables and sampling choices. For *entrepreneur centrality*, we captured an entrepreneur's current direct and developing ties by assuming (based on our qualitative fieldwork) that entrepreneurs already possessed introductions for VCs whom they would rate within the coming 90 days; robustness tests run using only ratings up through the day of the current rating, however, yielded similar results.

We also explored our decision to exclude late-stage VCs and ran robustness tests that included all early and late-stage VCs rated at TheFunded. As expected, many of the coefficients for the independent variables were similar but of lower statistical significance; additionally, one of the measures of entrepreneur motivation (*no prior community ratings*) was not significant as a direct effect, nor in interactions. We

believe that this supports our assumption that entrepreneurs primarily compare early-stage VCs against other early-stage VCs.

Finally, while we focused on entrepreneur ratings of VCs' track records at TheFunded, as it appears to most closely correspond to the objective information in the LPJ index, we explored this assumption by examining how entrepreneur ratings of VCs' operating competence and execution assistance align with the LPJ index. The results were broadly similar to those reported, though with many individual coefficients slightly weaker and the coefficient for VC track record losing significance. This suggests that entrepreneurs' ratings of VC track records are most appropriate for testing our theory regarding alignment of the quality indicated by a VC's past behavior and performance, and entrepreneurs' perceptions of that quality. Overall, these tests support our methodological choices and the robustness of the presented results.

DISCUSSION

Although considerable research has highlighted the value of young firms working with high-quality partners (Fitza, Matusik, & Mosakowski, 2009; Lee et al., 2011; Rothaermel & Boeker, 2008; Stuart et al., 1999), research on forming these partnerships has focused on the ways in which young firms may best convey their attractiveness to such partners (Hallen, 2008; Vissa, 2012; Zott & Huy, 2007). Yet the entrepreneurship literature and much of the broader literature on firm reputations (Fombrun & Shanley, 1990; Lange et al., 2011; Rindova et al., 2005) has tended to assume that it is relatively easy for entrepreneurs to accurately assess the quality indicated by a potential partner's track record. We challenge this assumption and develop a framework to explicate when entrepreneurs are likely to be more or less accurate in quality evaluations. We focus on entrepreneurs raising funds from VCs as one information-sparse context, but believe the highlighted issues may be prevalent in other contexts, such as markets featuring professional service firms. Our study offers several important contributions.

Firm Reputation Contributions

While the firm reputation literature has tended to emphasize how a firm's objective track record influences perceptions of quality in information-rich settings (Fombrun & Shanley, 1990; Rindova et al., 2005), we show how characteristics of both the

evaluator and potential partner may lead to inaccurate quality perceptions in information-sparse settings. We do so by building on concepts from bounded rationality (March, 1978; O'Reilly, 1982; Simon, 1947; Tversky & Kahneman, 1974) to recognize the limited information gathering by evaluators and the limited extent to which information may diffuse throughout an environment. Central to our arguments is the recognition that accurate evaluations depend not only on individuals' motivation and access to information, but also on characteristics of the firm that is being evaluated. Our study thus extends recent literature that has sought to unpack the cognitive micro-foundations of firm reputations (Mishina et al., 2012), and contributes by identifying when evaluator perceptions are more likely to match available objective information about a potential partner.

Our finding that perceptions of firms can be systematically biased from a firm's track record also holds important implications for theory and future studies of firm reputation. Whereas the firm reputation literature has tended to suggest that perceptions of firm quality are relatively homogenous among stakeholders with similar concerns (Highhouse et al., 2009; Jensen et al., 2012; Lange et al., 2011), we find substantial variance among individuals with similar concerns. Theoretically, such variance is important as it highlights that caution must be taken in treating reputation solely as a firm-level construct, suggesting that firm reputation instead resides at the nexus of a firm and a group of individuals with similar concerns, information access, and levels of motivation. While theories of managing firm reputation have often emphasized substantive and symbolic actions (Barnett & Pollock, 2012; Zavyalova et al., 2012), our research highlights that firms may also benefit from strategically choosing audiences whose network centrality and motivation suggests they are likely to better appreciate (or, in some situations, misperceive) a firm's actual track record.

Additionally, while past reputation literature has been criticized for "adopt[ing] measures of corporate reputation based more on data availability than on fit with the underlying construct" (Barnett & Pollock, 2012: 4), our theory of misperceptions offers insight into when it may be especially important to use perceptual measures of reputation in place of objective measures, even though they may be harder to gather. Namely, we highlight the importance of perceptual measures in information-sparse settings where evaluators are limited in their network centrality or

motivation, and where target firms have limited track records or high prominence.

We also contribute to the theory of firm reputation by further elucidating important distinctions between a firm's track record and its prominence, and the positive relationship between these constructs, as highlighted by Rindova and colleagues (Rindova, Williamson, & Petkova, 2010; Rindova et al., 2005). Departing from prior literature, however, we argue for and show that a strong track record and high prominence may have *opposing effects* on the alignment between perceptions and a firm's objective track record. That is, while a better track record may make more information about a firm available for evaluators to *pull*, greater prominence is often associated with incomplete or biased information being *pushed* to evaluators. Unexpectedly, we also find these mechanisms to be moderated differently based on evaluator characteristics. While greater evaluator motivation amplifies the accuracy-increasing effects of stronger firm track records, we surprisingly find that neither evaluator centrality nor motivation dampens inaccuracies arising from high prominence. This is interesting, as it suggests that whereas other aspects of firm reputation may often influence evaluator perceptions through conscious heuristics and searching, high prominence may largely influence evaluations through subconscious psychological biases. For firms, it may thus be especially important to strategically manage prominence, while for evaluators this raises important questions for future research about what (if any) behaviors might better dampen inaccurate evaluations due to a firm's high prominence.

Entrepreneurship Contributions

This paper also contributes to the literature on entrepreneurship that has given considerable attention to the challenges that young firms face in convincing others of their quality (Dushnitsky, 2010; Matusik et al., 2008; Zott & Huy, 2007). In contrast, our study indicates that entrepreneurs also face difficulties in accurately evaluating potential partners' track records. Particularly striking is the fact that evaluations of partners are especially inaccurate when entrepreneurs are less central, less motivated, and when evaluating low-quality or exceptionally prominent partners. Ironically, it is in these situations that high-quality partners may be most needed. Our research thus joins literature on how entrepreneurs overcome disadvantaged social positions (Hallen & Eisenhardt, 2012; Mollick, 2014; Vissa,

2012) by explicating when entrepreneurs are likely to benefit from more rigorous evaluations of potential partners.

Both our qualitative and quantitative analyses indicate that entrepreneurs often exert limited and staged effort in evaluating partners, instead of the highly rational and exhaustive evaluation processes often portrayed in the entrepreneurial and broader interorganizational partnership literatures (Gulati & Gargiulo, 1999; Hallen, 2008). Our interviews suggest that a core issue is that entrepreneurs not only face many liabilities of newness (Stinchcombe, 1965), but that these challenges arise simultaneously—echoing Cyert and March's (1963) emphasis on how the presence or absence of slack may alter decision making. We show that accurate evaluations depend on a convergence of factors, with information about a potential partner being easily accessible (via the firm having a strong track record), an absence of high prominence, and entrepreneurs having sufficient networks and motivation to gather and analyze information. Thus, in contrast to literature that has explored how entrepreneurs and others are likely to match with partners of a similar quality (Gulati & Gargiulo, 1999; Hallen, 2008; Mindruta, Moeen, & Agarwal, 2016), our findings elucidate how quality *mismatches* may arise. Additionally, our paper contributes to the emerging literature on the misalignment that can occur between the motivations of entrepreneurs and their partners (Diestre & Rajagopalan, 2012; Hallen et al., 2014; Katila et al., 2008), unpacking how and why entrepreneurs may have trouble identifying potential misalignment.

Our study also contributes to literature on the benefits that network embeddedness may bring to entrepreneurs (Pollock et al., 2015; Stam et al., 2014). While we do find that greater centrality brings increased accuracy in evaluations, we also unexpectedly find that this positive effect diminishes with greater centrality and maxes out in the top quintile of our sample. Moreover, even at the highest levels of centrality, many entrepreneurs still exhibit a degree of inaccuracy in their evaluations. We believe this indicates that entrepreneurs' evaluations are substantially influenced by their bounded rationality, and that while centrality may help make information more accessible, central entrepreneurs still face many challenges in interpreting information that social connections may provide. Additionally, we unexpectedly find some evidence that very high centrality may dampen the accuracy-increasing effects of a VC having a stronger track record. One explanation for this is that more central network positions

may make entrepreneurs more passive and overly reliant on information from their ties, thereby possibly limiting their information searches. Together, these findings further highlight the need for a bounded rationality perspective on entrepreneurship, and greater exploration of the means by which busy entrepreneurs can better make sense of situations that are often novel and overwhelming.

Finally, our paper contributes to the entrepreneurship literature by further validating the LPJ index of VC reputation. We find that entrepreneurs with more central network positions or greater motivation perceive VC quality in a manner that is highly consistent with the LPJ index. To our knowledge, this is the first validation of the index using direct perceptual data (versus inferring perceptions from stakeholder actions). Our research also offers a normative implication by highlighting that many entrepreneurs could substantially benefit from using rankings such as the LPJ index or TheFunded to better understand the markets they enter. This also suggests that entrepreneurs may benefit from education-oriented programs in the form of accelerators (Hallen, Bingham, & Cohen, 2016), or earlier-stage programs such as the Founder Institute (which, interestingly, was founded by the same individual as TheFunded).

Bounded Rationality Contributions

Finally, our research heeds Gavetti, Levinthal, and Ocasio's (2007: 525) call to resurrect "some of the Carnegie School's forgotten, but once central ideas . . . for a renewed behaviorally plausible, decision-centered perspective on organizations," and builds on classic insights from bounded rationality to advance theories of firm reputation and entrepreneurship in novel directions. Responding to this call, we empirically marry bounded rationality's traditional emphasis on the individual and organization with an open-systems perspective. In doing so, our results offer the insight that even when entrepreneurs are highly motivated, accurate evaluations of firm track records still depend on the surrounding environment providing easy access to relevant information. Additionally, we contribute a richer perspective on satisficing. Our qualitative fieldwork indicates that while entrepreneurs were often intentional in satisficing, many also retrospectively believed their satisficing introduced greater evaluative error than recognized at the time. This suggests that individuals and organizations may sometimes be more "boundedly" rational than

intended, and that individuals and organizations may improve their decision making by learning how to better satisfice.

LIMITATIONS AND FUTURE RESEARCH

While our novel dataset offers many advantages, there are limitations. First, we only study entrepreneurs' perceptions of VCs they have met with. While our robustness tests indicate that our results are unlikely to be biased by different groups of entrepreneurs systematically ranking different VCs, future research may be able to address this limitation using alternative research designs. Second, we have focused on the match between individuals' perceptions of firms and the quality indicated by their track records. Building on the social construction perspective on firm reputation, an opportunity for future research is to explore when individual perceptions are more or less aligned with the collective perceptions of a firm in a field. Third, one limitation is that the perceptual data has a coarser scale than the LPJ index, necessitating assumptions about how to compare the two; this also provides an opportunity for research. Fourth, while we have focused on the dyadic interplay of individual evaluator and evaluated firm factors, it would also be interesting to further explore how individual-level factors influence an individual's average level of bias and the reliability of their evaluations. Fifth, as TheFunded collects limited information about entrepreneurs for privacy reasons, there is opportunity to further test our framework using more direct measures of entrepreneur centrality and motivation. Finally, it would be especially intriguing to explore the extent to which such evaluative inaccuracies are present in other settings—possibly even including information-rich contexts.

CONCLUSION

In contrast to literature on the evaluation of firm quality, which has often used the evaluated firm's perspective to consider how firms may be regarded as higher quality, we take the perspective of the evaluator and explore the factors that lead to more- or less-accurate quality evaluations. We have built on the insight that bounded rationality suggests that the very information interpretation process underlying much of the entrepreneurial partnership and firm reputation literatures is cognitively difficult and likely to be avoided by individuals in many circumstances. We note that central to our research is a focus on firms that are important economic exchange partners for entrepreneurs, but which may be in information-sparse environments. More broadly, we believe that our research highlights the breadth of dynamics that may influence and alter the perceptions of firm quality and the remaining rich opportunities for extending our understanding of firm reputations.

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Benjamin L. Hallen (bhallen@uw.edu) is an assistant professor of management at the University of Washington. He received his PhD in management science and engineering from Stanford University. His research involves the study of how entrepreneurs obtain early support, exploring how they embed themselves in industry networks and navigate the dangers of early tie formation, and has appeared in *Academy of Management Journal*, *Administrative Science Quarterly*, and *Strategic Management Journal*.

Emily Cox Pahnke (eacox@uw.edu) is an assistant professor of management and organizations at the Foster School of Business at the University of Washington. Her research is at the nexus of innovation and entrepreneurship and focuses on how different types of resources affect venture outcomes. Her recent research has appeared in *Academy of Management Journal*, *Administrative Science Quarterly*, and *Strategic Management Journal*. She holds a PhD in management science and engineering from Stanford University.

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