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The Effects of Perceived Control on Venture Capitalist Investment Decisions: A Configurational Perspective

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Drawing on agency and configurations theories, this study examines how perceived level of control over the entrepreneur influences venture capitalist (VC) decision making. We model the direct effects of perceived control and the interactive effects of control with entrepreneurial prestige and opportunity attractiveness to determine how various combinations of factors influence VCs' willingness to invest. We test our conceptualizations using conjoint analyses of 552 VC investment decisions. The results show that perceived control is directly related to investment likelihood, but different configurations of control, entrepreneur prestige, and opportunity attractiveness result in different outcomes. Our findings support a configurational perspective of VC decision making.

Introduction

"If the investor group will not have control over who runs the show—it is hard for me to pull the trigger"—Venture capitalist interviewed for this study

Resource commitment is a key step in the entrepreneurial process, and because venture capitalists (VCs) are key players in the resource game, researchers have paid significant attention to VCs' investment decisions (cf. Ahlstrom & Bruton, 2006; Walske & Zacharakis, 2009). A National Venture Capital Association (NVCA) report highlights the importance of VCs in entrepreneurship, indicating that by the end of 2011, VCs had $197 billion under management in entrepreneurial firms in the United States (NVCA, 2012). Because of this criticality, academic researchers have taken considerable steps

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toward achieving a deeper understanding of how VC investments unfold (e.g., Chen, Yao, & Kotha, 2009; Payne, Davis, Moore, & Bell, 2009; Petty & Gruber, 2011; Shepherd & Ettenson, 2000; Zacharakis & Shepherd, 2001). Moreover, this research has demonstrated that VCs are often heavily involved in the ventures in which they invest (Fried, Bruton, & Hisrich, 1998; Gorman & Sahlman, 1989), suggesting that in many cases, VCs see the need to closely monitor and control entrepreneurs' actions. By deduction, this means that VCs are likely to consider the degree to which they will have control over entrepreneurs' actions as they evaluate investment opportunities (Amit, Glosten, & Muller, 1990; Wijbenga, Postma, & Stratling, 2007). In that regard, control is likely to play an influential role in the VC investment decision-making process.

Leifer and Mills (1996) formally define control as a regulatory process by which standards and mechanisms are established to improve predictability and the ability to attain a desired state or objective. Thus, control can be thought of as the VC's ability to monitor and direct the entrepreneur's actions in the postinvestment period. The idea that VCs may want to control entrepreneurs' actions can create problems because most entrepreneurs want to maintain autonomy even though they must forfeit some freedom in exchange for much-needed capital. Wasserman (2008, p. 104) highlights this phenomenon in his analysis of start-ups, revealing that founding entrepreneurs often harbor attitudes that resist control. Specifically, he documents that many founders maintain the following notion: "I'm the one with the vision and the desire to build a great company. I have to be the one running it." This type of thinking, alongside that expressed by the VC in the opening quotation, highlights that control is clearly an important factor for both VCs and entrepreneurs, and may result in tension in VC investment decisions (Bonini, Alkman, & Salvi, 2012; Payne et al., 2009). As such, VC investment deals often involve a variety of negotiated control mechanisms, such as the ability to modify the management team and compensation structure (Barney & Busenitz, 1996; Lerner, 1995; Sahlman, 2003), rights to allocate cash flows (Kaplan & Strömberg, 2003), and the ability to stage financing or build co-investing structures (Steier & Greenwood, 1995).

Despite the importance of control in VC investment, the relationship between VCs' perceived level of control and their decisions to invest in ventures has yet to be theoretically modeled and empirically tested. As such, we have limited knowledge about how control factors into VCs' investment evaluations, and more critically, we lack insight into the conditions under which control may be more or less impactful. As a result, we know relatively little about how VCs' perceptions of entrepreneurs' willingness to accept VCs' formal and informal control mechanisms might influence investment decisions. It follows that we also have a limited understanding of the circumstances under which other deal attributes (e.g., opportunity attractiveness) might enhance or trump VCs' need for control. Further, we are left to wonder how VCs react in suboptimal environments where deal attributes, such as control, are not at optimal levels. This clearly inhibits our understanding of how deal characteristics coalesce as VCs evaluate investment opportunities.

To address these issues, we develop a theoretical model that articulates the role of perceived control in VC investment decisions. To do this, we adopt logic and inferences from agency theory, which is based on the idea that when firm ownership (e.g., VCs) and management (e.g., entrepreneurs) are separate entities, competing interests may develop (Jensen & Meckling, 1976). It is well documented that entrepreneurs sometimes exhibit individual utility-maximizing behavior that is misaligned with investor goals (Bitler, Moskowitz, & Vissing-Jorgensen, 2005; Castrogiovanni, Combs, & Justis, 2006; Gorman & Sahlman, 1989). This suggests that capital providers must take steps to align entrepreneurs' interests with those of investors to ensure resources are used optimally and

maximum financial returns are realized (Amit, Brander, & Zott, 1998; Amit et al., 1990; Bohren, 1998).

Agency theory is a useful theoretical lens because it provides an overarching framework explaining how competing interests may develop in the VC–entrepreneur relationship (Jensen & Meckling, 1976) and how control mechanisms may be used to align interests in a way that improves the odds of superior financial performance. However, considerations of perceived control do not happen in a vacuum, so we extend the agency perspective to consider that the effects of control may vary in the presence of other deal characteristics. Specifically, we use the configurations approach (e.g., Hill & Birkinshaw, 2008) to investigate interactions that may exist when control is considered alongside the entrepreneur's prestige (D'Aveni, 1990) and the opportunity's attractiveness (Haynie, Shepherd, & McMullen, 2009), both of which have proven influential in prior VC investment evaluation studies (cf. Murnieks, Haynie, Wiltbank, & Harting, 2011). Through the configurations lens, we are able to explore equifinality and trade-offs between investment deal characteristics, recognizing that an optimal—yet potentially rare—configuration may exist and that in the absence of the optimal, the presence of some positive characteristics may "fill the void" created by the presence of less desirable characteristics.

Our model and empirical findings make important contributions to the body of research on VC investment decisions (e.g., Chen et al., 2009; Petty & Gruber, 2011; Shepherd & Ettenson, 2000; Zacharakis & Shepherd, 2001). First, our study is one of the first to theoretically model and empirically test the effects of perceived control on VC investment decisions. As such, our study is positioned to shed new light on the role that perceived control is likely to play as VCs evaluate investment opportunities, and this improved understanding is likely to be of value to VCs and entrepreneurs alike. Second, our study is unique in that it offers predictions and empirical insights that are only derivable by considering the circumstances under which control occurs alongside other important opportunity investment characteristics. By taking the configurations approach, we offer both theoretical and empirical contributions that move the literature forward by examining the idea that the effects of control may be dependent—and perhaps even subjugated—in the presence of important structural factors (March, 1994) like the entrepreneur's prestige (Franke, Gruber, Harhoff, & Henkel, 2008; Hsu, 2007) and the opportunity's attractiveness (Hall & Hofer, 1993; Haynie et al., 2009; Zacharakis & Meyer, 2000). Our approach provides empirical evidence that VCs' decision processes can be more comprehensively understood when simultaneously considering multiple factors, and that ideal arrangements and trade-offs between deal characteristics exist that may lead to equifinal outcomes. The net effect is an improved understanding of how deal variables come together in a way that makes VCs more or less sensitive to the need for control over entrepreneurs' actions.

Control in VC Decision Making

The potential for conflict in investor–entrepreneur relationships has been well documented, and the literature suggests that at least three types of agency problems are likely to surface (cf. Hellmann, 1998; Kaplan & Strömberg, 2003, 2004; Sapienza & Gupta, 1994). The first type is adverse selection, which refers to the uncertainties that investors (VCs in this case) face in terms of preset expectations of the human capital seeking funding (Amit et al., 1998). Since proposals are often presented by unfamiliar entrepreneurs and are centered on unique differentiating attributes (Elitzur & Gavious, 2003),

uneven knowledge distribution often surfaces, which gives rise to a number of potentially hazardous circumstances. For example, an entrepreneur might manipulate information and projections by over-forecasting future performance and under-forecasting expected obstacles in an effort to attain maximum funding (Markman, Balkin, & Schjoedt, 2001). Trust can help overcome this obstacle (Maxwell & Levesque, 2011), but significant knowledge gaps often persist between the information that entrepreneurs have and the information that they disclose to potential investors (Amit et al., 1990; Barry, 1994; Berggren, Olofsson, & Silver, 2000). Further, trust—defined as accepting vulnerability to another party (Rousseau, Sitkin, Burt, & Camerer, 1998)—may not be viable given the lack of interaction between entrepreneur and investor in the preinvestment stage of interest in this study (Payne et al., 2009).

The second potential agency conflict is that of moral hazard (Holmström, 1979; Lerner, 1995). Moral hazard occurs when entrepreneurs do not act in investors' best interest. For example, "if there are private benefits from continuing a project, entrepreneurs may keep the project going even if it has negative expected profits" (Wang & Zhou, 2004, p. 132). Related to the threat of moral hazard is a third possibility—namely, the concern that entrepreneurs will "hold up" the investor. This transpires when the venture is operated by valuable human capital that may threaten to leave (Hellmann, 1998; Kaplan & Strömberg, 2003). If the entrepreneur's knowledge, skills, and abilities are central to venture success, the entrepreneur has leverage over the investor that may be used to maximize the entrepreneur's self-interest.

The ubiquitous presence of the agency conflicts outlined above could potentially result in tenuous relationships between VC investors and the entrepreneurs they back. Thus, VCs rely on a number of governance and control mechanisms designed to align entrepreneurs' interests and behaviors with those of VCs, thereby reducing the threat of adverse selection, moral hazard, and holdup (Bruton, Fried, & Hisrich, 2000; Gompers & Lerner, 2004). These controls are not necessarily structured in a standardized fashion across the venturing community; rather, levels of control within a particular investment generally take different shapes depending on each unique situation. As such, the presence and/or stringency of various mechanisms tend to vary. Specifically, control safeguards such as the ability to modify the management team (Barney & Busenitz, 1996; Hellmann & Puri, 2002), alter the compensation structure (Sahlman, 2003), dilute the founder's equity stake (Gompers & Lerner; Sahlman, 2003), utilize *ex-ante* and *ex-post* staged funding (Kaplan & Strömberg, 2004; Tian, 2011), transfer financial control (Kaplan & Strömberg, 2003), and exercise liquidity rights (Kaplan & Strömberg, 2003) are among a number of widely used controls that emerge in a variety of configurations that are contingent upon the level of negotiated control. The implementation of such instruments can afford VCs the opportunity to take significant control of ventures if suboptimal performance or unanticipated opportunistic behavior ensue (Kaplan & Strömberg, 2003, 2004). Thus, for VCs, the concern is the degree to which they can reduce uncertainty and agency concerns by monitoring and controlling entrepreneurs' actions (De Clercq & Manigart, 2007; Kaplan & Strömberg, 2003; March, 1994; Metrick & Yasuda, 2011). As an implication, whether entrepreneurs appear amenable or resistant to accepting control mechanisms is likely to influence the degree to which VCs will be willing to invest in the entrepreneurs' projects.

The arguments outlined above are derived from the logic and inferences found in extensive and established literature streams. As such, they suggest what may be a seemingly intuitive relationship between perceived control and VCs' willingness to invest. However, we point out that while alluded to in the literature, this relationship has not been formally argued, hypothesized, or empirically tested, so we do so here. Further,

establishing the conceptual logic behind the control–investment relationship is a necessary precursor to theorizing about the control-related interaction effects discussed in the sections that follow. Thus, we formally state our first hypothesis:

Hypothesis 1: There is a positive relationship between the VC's perceived control over the entrepreneur and willingness to invest.

Control and the VC Decision-Making Nexus

While the direct relationship between control and willingness to invest is clearly important for understanding VC decision making, prior research tells us that a nexus of factors determine entrepreneurial activity (Sarason, Dean, & Dillard, 2006; Shane, 2003). This means that in real-world situations, control is unlikely to be considered in isolation. Agency theory tenets suggest that there are situations in which interest misalignment and information asymmetries are more or less prevalent, and control becomes a bigger or lesser concern. In VC decision making, there are a number of factors that might create such conditions. For example, Murnieks et al. (2011) highlight the work of Franke et al. (2008), who used a range of studies to identify *founder quality* and *economic quality of the opportunity* as two of the most important VC investment decision criteria. The implication for our model then is that certain founder and opportunity qualities may give rise to situations in which agency threats are more or less salient, and thus the influence of control varies as a function of these qualities. Following this logic, and building on Franke et al. and Murnieks et al., we now consider the degree to which perceived control might influence investment decisions given various levels of founder and opportunity quality.

Although there are a number of founder and opportunity qualities that may influence the effects of perceived control, this study examines the primary contingencies of (1) entrepreneurial prestige (i.e., experience and affiliations) as an indicator of a high-quality entrepreneur (D'Aveni, 1990; Hsu, 2007; Packalen, 2007) and (2) opportunity attractiveness (Gartner, 1985; Haynie et al., 2009) as an indicator of a high-potential opportunity. We selected these variables (and not others) because *a priori* assessments of an opportunity's profit potential are subjective to the individual (Shane & Venkataraman, 2000), and when VCs see indications that the entrepreneur is well regarded or that the opportunity has high potential, they are more likely to invest (Murnieks et al., 2011). Viewed in light of agency theory logic, this suggests that there are situations in which a VC may be more or less focused on the threat of adverse selection, moral hazard, and holdup depending on the entrepreneur's prestige or the business opportunity's potential. For instance, in the presence of highly attractive opportunities, VCs may perceive that there are greater opportunities for adverse selection and holdup that may prevent them from receiving maximum returns. In such instances, VCs may focus more heavily on control. It is this type of contingency effect that we explore from a configurations perspective (e.g., Burton, Lauridsen, & Obel, 2002, 2003; Payne, 2006). Taking such a perspective is necessary because control can only be fully understood when one simultaneously considers the quality of the entrepreneur and the opportunity.

Entrepreneurial Prestige and Control

Prestige is an inherently broad term, and in order to be conceptually clear, we follow D'Aveni's (1990, p. 121) conceptualization that prestige is "the property of having status."

D'Aveni contends that prestige is subjective and socially situated, so individuals can develop prestige in a number of ways. Prior success, degrees or affiliations with elite educational institutions, placement on boards of directors, or holding high-level positions at some point in one's career are just a few of the ways that individuals develop prestige.[1] Applied to the domain of entrepreneurship, prestige is important as a sizeable body of research shows that potential investors rely heavily on subjective criteria related to managerial prestige when evaluating venture viability, such as the background, prior record, affiliations, and other related characteristics of the entrepreneur and management team (i.e., Franke et al., 2008; Hsu, 2007; Packalen, 2007; Zacharakis & Shepherd, 2001). The logic is that key players' credentials act as indicators of competence (Packalen; Pennings, Lee, & Witteloostuijn, 1998), as highlighted by Shepherd's (1999, p. 625) argument that VCs manage uncertainty by "choosing a management team they believe will be able to cope with expected and unexpected changes in the market and competitive environment." In addition, renowned VC John Doerr (provider of financing to Google and Amazon) expands upon the importance of such characteristics in the investment evaluation by stating, "I always turn to the biographies of the team first" (quoted in Camp, 2002, p. 25).

While entrepreneurial experience and high-status affiliations clearly play an important role in investment decision policies (Packalen, 2007), prestigious entrepreneurs may be more outspoken and insistent upon approaching the venture according to their own perspectives and objectives as opposed to those of the VC. Indeed, entrepreneurs' and VCs' venture objectives can differ greatly, leading to serious tension and disagreements (Cable & Shane, 1997; De Clercq & Sapienza, 2006). For instance, VCs typically desire high-growth ventures with early exit opportunities while entrepreneurs tend to focus on long-term growth and profitability (Turcan, 2008). Such divergent objectives may lead to agency-type disagreements over how the firm should be directed, and subsequently, less optimal outcomes (Sorenson & Stuart, 2001).

The extent to which the VC and the entrepreneur agree upon common goals and values is positively linked to venture success (Bruton et al., 2000; De Clercq & Sapienza, 2006). From the VC's perspective, a high level of perceived control is especially desirable when an agreement is made with a prestigious entrepreneur because it may mitigate potential conflicts with regard to moral hazard, risk, and venture objectives (Turcan, 2008; Wang & Zhou, 2004). Further, such a scenario may suggest that the prestigious entrepreneur—with presumably more knowledge of how VCs operate—has purposely chosen to work with the VC instead of using other financing options because of similar views and objectives. VCs are not necessarily interested in running the business but want to ensure that entrepreneurs remain motivated and that adequate progress is being made toward a successful outcome (De Clercq, Fried, Lehtonen, & Sapienza, 2006). Therefore, high levels of managerial competence, combined with the ability to control or alter the venture's actions, provide a desirable scenario for the VC. Formally, we state the following:

Hypothesis 2: There is an interaction effect between the entrepreneur's prestige and perceived control such that as prestige increases, control has a greater influence on willingness to invest.

1. Prestige is similar to reputation, which is increasingly seen as playing an important role in the emergence of entrepreneurial opportunities (cf. Wood & McKinley, 2010).

Opportunity Attractiveness and Control

No matter how skilled the entrepreneur is, the core of any successful business enterprise is the entrepreneurial opportunity that made it possible. Entrepreneurial opportunities are defined as situations in which "new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production" (Casson, 2000, p. 220). By definition then, opportunities must hold profit potential. However, the profit potential of an opportunity is a future-oriented judgment, and the true value can only be known *post hoc* (Grégoire, Barr, & Shepherd, 2010). This means that decisions regarding whether or not to act on an opportunity rests on judgments of whether or not the opportunity appears attractive given one's resources, knowledge, skills, and abilities (Haynie et al., 2009; Wood, Williams, & Grégoire, 2012). In that way, entrepreneurs, investors, and other potential stakeholders must form a consensus belief that an opportunity for profit does indeed exist and that the opportunity is desirable and feasible for those who will be involved in exploitation (Krueger, 1993; Wood & McKinley, 2010).

During this process, positive or negative evaluations of desirability and feasibility may emerge. For example, negative evaluations will lead to doubt that an opportunity exists (at least for those involved specifically), and thus the opportunity will likely be abandoned (Shepherd, McMullen, & Jennings, 2007; Wood et al., 2012). If, however, evaluations are positive, and the opportunity is not only deemed feasible in terms of the resources required and the ability to generate economic rents, but also desirable in terms of goals, motivation, and circumstances, then a consensus forms that an attractive opportunity does indeed exist (Wood & McKinley, 2010). This is important because it has long been conceptualized that attractive opportunities impel new venture creation. For example, proponents of "pull entrepreneurship" (Gartner, 1985) and "opportunity-based entrepreneurship" (McMullen, Bagby, & Palich, 2008) have succinctly argued that some individuals choose entrepreneurship because they identify an opportunity that is so attractive it simply cannot be passed up. Indeed, a substantial body of decision-making research has shown that entrepreneurs and investors are much more likely to act on highly attractive opportunities than on opportunities that they perceive to hold less potential (cf. Hall & Hofer, 1993; Mitchell & Shepherd, 2010; Zacharakis & Meyer, 2000).

While a relationship between opportunity attractiveness and likelihood of investing is both intuitive and supported by prior research (e.g., Haynie et al., 2009; Mitchell & Shepherd, 2010; Sorensen & Sorenson, 2003), it is unclear how this relationship is influenced by other decision criterion, such as perceived control. Considered together, it seems that VCs would perceive a venture to be more desirable when both the opportunity is attractive and the level of control is high such that risks of moral hazard, holdup, and other opportunistic behaviors are reduced. In other words, attractive opportunities are those opportunities that hold strong potential to generate entrepreneurial rents (Haynie et al.), and when presented by an entrepreneur who is more accepting of VC control, agency risks are reduced and VCs will deem the deal to be more desirable and feasible. Overall, we suggest that VCs will be more likely to invest in attractive opportunities in the presence of high perceived control. Formally, our third hypothesis states the following:

> **Hypothesis 3:** There is an interaction effect between opportunity attractiveness and perceived control such that as opportunity attractiveness increases, control has a greater influence on willingness to invest.

Configurations of Prestige, Opportunity Attractiveness, and Control

The previous arguments suggest that VC investment decision making involves a complex and interrelated set of relationships involving the three broad considerations of entrepreneurial prestige, opportunity attractiveness, and control. While these factors may impact willingness to invest both independently and as two-way interactions, to fully understand the role that these factors play in VC investment decisions, we must consider these factors collectively. Doing so requires placing a greater emphasis on the configurations perspective.

Configurations theory—typically used to explain organizational differences (e.g., Miller & Friesen, 1984)—is an evolution of contingency theory, and argues that taking a multidimensional view of characteristics or constructs is often preferable and more meaningful than examining them in isolation (Fiss, 2007; Meyer, Tsui, & Hinings, 1993; Short, Payne, & Ketchen, 2008). In other words, while distinct characteristics may influence a particular outcome variable, it is likely that some combination of these characteristics "fit" together in a way that exhibits the greatest influence on a specific outcome (Dess, Newport, & Rasheed, 1993; Hill & Birkinshaw, 2008). The configuration idea is reflected in the "garbage can" decision-making model (cf. Mintzberg, 1979) in which the decision maker sorts and combines decision elements to understand the "unfolding nature of the linkages between problems and solutions" (March, 1994, p. 206). These linkages may then form the basis of a story that represents how the particular combination of elements explains what happened or predict what might happen (March).

One of the main implications of the configurations approach is that "increased effectiveness is attributed to the internal consistency, or fit, among the patterns of relevant contextual, structural and strategic factors" (Doty, Glick, & Huber, 1993, p. 1196). If we apply this logic to the ambiguous task of predicting new venture outcomes, it is likely that the decision process can be more completely understood when complex linkages among these criteria are considered as an optimal or ideal combination rather than independently. Thus, the optimal combination (or clearly the suboptimal combination in avoidance-focused decisions) of characteristics is likely to dominate the effect of any individual venture characteristics during the investment decision-making process (Petty & Gruber, 2011). The fundamental proposition is that the level of fit or congruence (Drazin & Van de Ven, 1985) among the entrepreneur's prestige, the opportunity's attractiveness, and perceived control over the entrepreneur's actions will be associated with the VC's willingness to invest in the venture. Specifically, we expect willingness to invest to vary according to the various combinations of control, prestige, and attractiveness, with the highest level of willingness to invest coming when all three characteristics are at high levels. Using configurations language (e.g., Gresov & Drazin, 1997), this prediction suggests an "ideal" type and is stated formally in the fourth hypothesis:

> **Hypothesis 4:** There is a three-way interaction effect among the entrepreneur's prestige, the opportunity's attractiveness, and perceived control such that willingness to invest is higher when prestige, attractiveness, and control are all high as opposed to when the attributes are all low or are in other possible configurations.

While high levels of all three characteristics would theoretically lead to the highest level of willingness to invest, it is likely that most investment opportunities will not meet this ideal situation. In particular and as noted previously, there is often an inherent conflict regarding control between VCs and entrepreneurs (Wasserman, 2008). Such conflict likely creates situations in which trade-offs or allowances have to be made. Put in terms of our second hypothesis, situations in which prestige and control are both high are ideal, but

given resistance from the entrepreneur, a VC may be willing to forgo extensive control if that entrepreneur is prestigious or if the business opportunity is extremely attractive. The underlying assumption is that mitigating the threat of agency is not worth missing out on working with highly prestigious entrepreneurs and/or acting on high-potential opportunities, especially when highly prestigious entrepreneurs voice objections to the VC's desire for increased control. In due time, the reality of this trade-off may prove unwise (Williamson, 1988), but during an investment evaluation, it is the perception (perhaps unconscious to the VC) that the trade-off is worth the risk that likely dominates the investment decision (March, 1994).

Building on the idea that there are substitutes for control, configurations theory advances the notion of equifinality, which suggests that trade-offs between configurational characteristics may exist such that different profiles may potentially lead to similar outcomes. Equifinality among configurational groups serves as the basic argument for the commonly utilized strategic typologies developed by Miles, Snow, Meyer, and Coleman (1978), Mintzberg (1979), and Porter (1998), and has been supported empirically (e.g., Doty et al., 1993). The equifinal outcomes associated with various configurations have proven especially insightful in suboptimal contexts (cf. Payne, 2006). The core idea is that individuals and organizations must consider a complex, and sometimes competing, set of factors, and these often coalesce in a way that is less than ideal. Hence, configurations theory suggests that it is useful to consider the functional equivalent outcomes that may emerge across a range of suboptimal situations.

Applying the configurations logic outlined above to the context of VC investment decisions suggests that there are a number of suboptimal combinations of prestige, opportunity attractiveness, and VC control, and at least some of these combinations may lead to equifinal outcomes. This line of thinking underpins our argument that different configurations of the investment opportunity attributes will result in relatively equal levels of investment willingness. In other words, while the decision factor configurations may deviate from the ideal with regard to the level of willingness to invest, this deviation will result in simultaneous trade-offs among the three characteristics of prestige, opportunity attractiveness, and VC control, and in some cases, these trade-offs will result in essentially the same level of willingness to invest. Formally, we hypothesize the following:

Hypothesis 5: Trade-offs exist among the entrepreneur's prestige, the opportunity's attractiveness, and perceived control such that equifinal outcomes (i.e., no discernible differences in willingness to invest) occur in suboptimal configurations.

Methods

We selected conjoint analysis as our principal methodology. Conjoint analysis and its associated method, policy capturing, are some of the most widely used tools for analyzing judgment and decision-making models (Brehmer & Brehmer, 1988; Green & Srinivasan, 1990; Priem, Walters, & Li, 2011). The technique involves asking respondents to make a series of judgments based on theory-driven profiles provided by the researcher (Aiman-Smith, Scullen, & Barr, 2002; Hitt, Ahlstrom, Dacin, Levitas, & Svobodina, 2004; Shepherd & Zacharakis, 1997). The advantage of this approach is that it overcomes many of the limitations associated with *post hoc* techniques that require introspection about decisions made in the past (Aiman-Smith et al.). However, a notable limitation of the conjoint approach is the potential for a low level of external validity (Hair, Black, Babin, Anderson,

& Tatham, 2006). We sought to overcome this external validity challenge by following the traditions established in well-regarded conjoint studies by modeling factors that have been shown to be important to VCs and by using experienced participants from the population for which we wish to generalize our findings (Green & Srinivasan; Shepherd & Zacharakis). Additionally, we conducted interviews with a number of VCs to further augment the validity and relevance of our findings; the insights gleaned from those interviews supplement the discussion of our findings.

Sample

We solicited experienced VCs to participate in our conjoint experiment. Because VCs often specialize in different types of funding stages and because our study is focused on understanding early stage funding decisions, we identified a group of VCs that primarily execute early stage funding deals. These individuals were listed in a leading VC association directory in the United States. We e-mailed initial participation invitations to 280 active VCs from this list and offered a $20 incentive to encourage participation. Following the guidance of Dillman (2000), our initial request was followed by two reminder requests sent at 1-week intervals. A total of 69 VCs (25% response rate) responded to our requests and completed the experiment. Our sample size is in line with those of other published VC decision-making conjoint studies (Franke, Gruber, Harhoff, & Henkel, 2006; Franke et al., 2008; Murnieks et al., 2011; Shepherd, Zacharakis, & Baron, 2003), and like these studies, our unit of analysis is the decision. Because participants completed eight decisions each, the relevant sample consists of 552 decisions.

Of the 69 VC participants, 24 accepted the $20 incentive while the remainder declined. To ensure the incentive did not introduce a bias, we compared age, education, and years of VC experience between those who accepted the incentive and those who did not, and we found no significant differences. In terms of gender and age, our participants included 7 females and 62 males ranging in age from 25 to 79, with a mean age of 49.72. In terms of education, 9 participants had some college, 45 had earned a bachelor's degree, and 15 had earned a master's degree. Each participant verified that he or she was an active VC, but they had varied levels of experience: 14 indicated 1–5 years, 13 indicated 6–10 years, 21 indicated 11–15 years, and 21 indicated 16 or more years of experience in the VC industry. These characteristics indicate that our participants were quite experienced at evaluating VC investment deals, and thus comprise an appropriate sample for our study (Brehmer & Brehmer, 1988).

Instrument

Our instrument design followed a number of published conjoint studies (Aiman-Smith et al., 2002; Choi & Shepherd, 2004; Haynie et al., 2009; Shepherd & Zacharakis, 1997). The instrument was presented via a web-based interactive process, and consisted of instructions for completing the experiment, descriptions of the variables, a series of conjoint profiles, and a post-experiment questionnaire. In the experiment portion of the instrument, VCs were asked to evaluate a series of hypothetical venture deal profiles, each of which described a different configuration of control, prestige, and attractiveness (see Table 1). After each scenario, subjects were asked to indicate their willingness to invest, amount of investment, and terms of investment given the deal attributes presented in the profile. Responses were captured using 7-point Likert scales.

In designing the profiles, we used an orthogonal full factorial design with two levels of control, two levels of prestige, and two levels of attractiveness (2 control × 2 prestige ×

2 attractiveness), which resulted in eight full profile descriptions. In the orthogonal approach, variable intercorrelations are zero, so multicollinearity is not an issue (Huber, 1987). In addition to the eight profiles, participants also received one "warm-up" profile that was excluded from the data analysis and three repeat profiles included as reliability checks. Profile presentation was randomized to reduce the probability of order effects (Hair et al., 2006). Additionally, profiles were presented on a separate screen, and participants were not allowed to refer back to any of the previous profiles.

We continued to follow the lead of other entrepreneurship-focused conjoint studies, and developed instructions and background scenario information (e.g., Haynie et al., 2009; Murnieks et al., 2011). Thus, before evaluating the profiles, participants were instructed that they would be asked to make a series of decisions regarding how likely they would be to invest in the launch of a new venture based on the industry attributes described in each profile. They were also told that when making these decisions, they were to put themselves in the context of each investment scenario, answering questions as if they were in the situation. Additionally, they were told to assume that the venture falls within their deal strategy and that they had the financial resources available to invest in the new venture if they chose to do so. Finally, participants were informed that each profile should be considered as a separate decision independent of all the others and that they would not be able to return to profiles they already completed.

Following the experiment instructions, a definition screen introduced participants to a fictional firm (i.e., WPI) via the following statement: "WPI is an early stage venture and is currently seeking funding. The company is based on the introduction of a new process technology. The WPI attributes presented in the simulation are related to the founder and the opportunity; these attributes are clearly defined for you."[2] This language was followed by the specific attributes and definitions for each level of the attribute. Attribute and level descriptions as presented to participants are provided in Appendix 1. The full instrument was reviewed by select VCs who made some suggestions for improvement. After revisions, the instrument was pilot-tested using a select group of graduate students. The results of the pilot indicated that the instrument effectively tapped into decision policies associated with new venture investment.

Variables

Dependent Variable. The dependent variable was VCs' willingness to invest in the venture. Most conjoint studies use a single-item scale to measure the dependent variable (Haynie et al., 2009; Wood & Pearson, 2009; Zacharakis & Meyer, 1998). However, recent studies have moved toward increasing reliability (Kerlinger & Lee, 2000) by employing multi-item scales. In that spirit, we adopted Murnieks et al.'s (2011) approach and measured the dependent variable using a 3-item scale. Specifically, we asked participants to indicate the probability they would invest (1 = low to 7 = high), the amount they would be willing to invest (1 = lowest possible amount to 7 = highest possible amount), and the terms of investment they would likely offer (1 = worst possible terms to 7 = best possible terms). We selected metric rating scales because they capture gradation in investment attractiveness and allow for the investigation of interactive relationships

2. This description of the target company is in line with other VC conjoint studies (cf. Murnieks et al., 2011) that provide very little information (if any) on the venture beyond profile attributes. This is intentional because such information is likely to influence responses and confound attribute effects.

(Hitt & Barr, 1989). The scale proved reliable (Cronbach's alpha = .89), and we summed the three scores to form an overall measure of willingness to invest.

Independent Variables. Each venture attribute profile was described in terms of the following three independent variables: perceived control (two levels), entrepreneurial prestige (two levels), and opportunity attractiveness (two levels). As previously discussed, we chose these variables (and not others) because of their assumed theoretical and demonstrated empirical importance in new venture investment evaluations (Franke et al., 2008; Mitchell & Shepherd, 2010; Payne et al., 2009), and we chose the levels of each variable based on variations typically found in VC investment environments. We constructed our eight profiles by varying the levels of each of these attributes until all possible configurations were included.

Control Variables. Prior research shows that experience matters when it comes to evaluating opportunities (Baron & Ensley, 2006; Haynie et al., 2009; Mitchell & Shepherd, 2010). Thus, our post-experiment questionnaire captured experience-related information to be included as control variables in our analysis. Specifically, participant education, age, and years of experience in the VC industry were employed as controls.

Empirical Model

Because each VC participated in a series of judgments, each judgment may not be entirely independent, so there may be autocorrelation issues. Therefore, an analytic technique designed for repeated measures (i.e., controls for autocorrelation) is required. Moreover, our data are mixed because we asked participants to evaluate a series of profiles (within subject), and we then collected information on demographic variables (between subjects). Both Field (2005) and Hair et al. (2006) suggest that mixed-model, repeated-measure analysis of variance (ANOVA) is an appropriate analytic technique that fits well with our data structure. In addition, the advantage of the ANOVA approach over other possible techniques (e.g., hierarchical linear modeling) is that it provides a detailed set of estimated marginal means for all possible variable combinations. These mean values are required to untangle the complex interactions, configurations, and trade-offs that we hypothesize, so we selected the ANOVA approach. Following the procedures outlined by Field and utilized in other entrepreneurship conjoint studies (Wood & Pearson, 2009), we entered the various levels of the independent variables (i.e., control, prestige, and attractiveness) as within-subject factors. All of the values for the control variables (i.e., age, education, and VC experience) were entered as between-subject factors, and the summated values from the willingness to invest scale were entered as the dependent variable.

Before conducting the data analysis outlined above, we needed to ensure that the experiment was completed reliably. For this purpose, we asked two questions, one inquiring if the participants had understood the instructions for the experiment and a second inquiring whether they had fully understood the definitions of the terms. All 69 VCs indicated assent to these two questions. Next, as a statistical test of reliability, we examined differences in VCs' responses to the original vs. repeat conjoint profiles. The idea was that if participants completed the experiment in a reliable manner, there should be no significant difference between responses (Green & Srinivasan, 1978; Hair et al., 2006). The means for the willingness to invest question were compared across the three original profiles vs. the three repeat profiles. Means were 1.35 vs. 1.38, 6.04 vs. 6.01, and 1.84 vs. 2.01. All three of these differences failed to reach statistical significance ($T = 0.03$, $p = 0.98$; $T = 0.43$, $p = 0.67$; $T = 1.62$, $p = 0.11$, respectively). These findings

suggest reliable responses on the part of the VC participants, and thus appropriateness to proceed with hypothesis testing.

Results

The experiment provided a total of 552 decisions as the result of each participant analyzing eight profiles. When analyzed at the aggregate level, we found a number of significant effects. Table 1 reports the estimated marginal population mean for each level of the variable (or interaction term), and Table 2 reports the results of our ANOVA analyses. In addition to these results, we also calculated and report below *full* eta-square values (η^2) for each main and interaction effect as an indicator of the amount of variance in the dependent variable explained by changes in the independent variable or interaction term (Hair et al., 2006; Levine & Hullett, 2002). Full eta-squared (aka classic eta-squared) is an "additive measure of unique variation in the dependent variable that can not be accounted for by other factors in the analysis" (Pierce, Block, & Aguinis, 2004, p. 919), and thus indicates the amount of variance attributable to each factor or interaction over and above that accounted for by other factors or interaction terms in the model.

As illustrated in Table 2, all three of the main effects were significant. The estimated marginal means in Table 1 revealed that as entrepreneurial prestige and opportunity attractiveness each moved from low to high, VCs were more willing to invest. These results were expected, and prior empirical research suggested that VCs would be more likely to invest in deals involving highly prestigious entrepreneurs, and our results provide

Table 1

Estimated Marginal Means by Factor and Level

Variable	Level	Mean	Standard error
Perceived control	Low	8.973	.427
	High	11.554	.609
Entrepreneurial prestige	Low	8.131	.402
	High	12.369	.598
Opportunity attractiveness	Low	7.762	.460
	High	12.761	.549
Entrepreneurial prestige × perceived control	Low-Low	6.946	.360
	Low-High	9.315	.499
	High-low	11.001	.522
	High-High	13.792	.746
Opportunity attractiveness × perceived control	Low-Low	7.069	.397
	Low-High	8.454	.644
	High-Low	10.877	.547
	High-High	14.656	.601
Prestige × attractiveness × control	Low-Low-Low	5.400	.312
	Low-Low-High	6.375	.376
	Low-High-Low	8.692	.348
	Low-High-High	12.367	.505
	High-Low-Low	8.950	.372
	High-Low-High	10.825	.681
	High-High-Low	13.417	.573
	High-High-High	16.992	.511

Table 2

Repeated Measures Modeling and Results for Likelihood of Investment

	Mean square	*F*-value
Between-subject control variable effects		
Age	27.457	.217
Education	11.015	.087
Experience VC industry	51.748	.408
Within-subjects main effects		
Perceived control	781.779	36.001**
Entrepreneurial prestige	1648.196	132.186***
Opportunity attractiveness	1730.470	158.668***
Within-subjects interaction effects		
Entrepreneurial prestige × perceived control	8.429	8.701*
Opportunity attractiveness × perceived control	92.029	15.582*
Prestige × attractiveness × control	10.972	4.841*

* $p < .05$, ** $p < .01$, *** $p < .001$.
n = 552 investment decisions made by 69 venture capitalists (VCs).

further support for this assertion, $F(1,4) = 132.18$, $p < .001$, $\eta^2 = .33$. Similarly, prior research suggests that VCs should be more willing to consider ventures based on highly attractive opportunities, and while not hypothesized, our results are consistent with extant research, $F(1,4) = 158.67$, $p < .001$, $\eta^2 = .34$. In sum, our findings further validate the findings in the literature for the effects of entrepreneur prestige and opportunity attractiveness.

In contrast to the previously established relationships among prestige, attractiveness, and investment likelihood, we developed an argument and hypothesized that perceived control would be positively related to VCs' willingness to invest in ventures. Our repeated-measure ANOVA results revealed a significant main effect for control, $F(1,4) = 36.01$, $p < .01$, $\eta^2 = .13$, and the estimated marginal means (Table 1) revealed that willingness to invest was substantially greater when control was high (M = 11.55) than when it was low (M = 8.97). These results provide strong support for hypothesis 1. It is worth noting that the *F*-values and N-square statistics reported above are indicators of effect size, so the importance of the variables explored can be determined. Thus, the decision making of our sample of VCs reveals that opportunity attractiveness was the most important factor, followed by the entrepreneur's prestige and then by perceived control.

Hypothesis 2 suggested that control interacts with entrepreneurial prestige in a reinforcing manner. Our analyses revealed a significant interaction effect between prestige and control, $F(2,4) = 8.701$, $p < .05$, $\eta^2 = .012$, and estimated marginal means (Table 1) showed that willingness to invest was substantially greater when prestige and control were both high (M = 13.79) than when they were both low (M = 6.94). To better understand this interaction, we followed the widely adopted recommendations and techniques suggested by Cohen, Cohen, West, and Aiken (2003), and graphed the interaction terms (see Figure 1). Viewing the graph in conjunction with the estimated marginal means used to construct it (Table 1), we see that when considered alone, the effect of prestige on willingness to invest had a low condition mean of 8.13 and a high condition mean of 12.37, but in the presence of low control, the means became 6.94 and 11.01, respectively. In the presence of high control, the means became 9.31 and 13.79, respectively. This

Figure 1

Entrepreneurial Prestige–Perceived Control Interaction

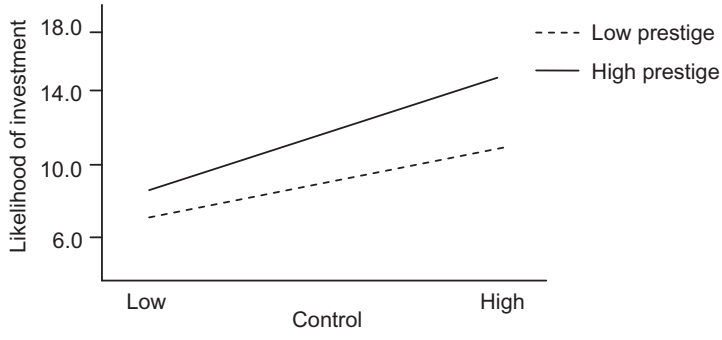
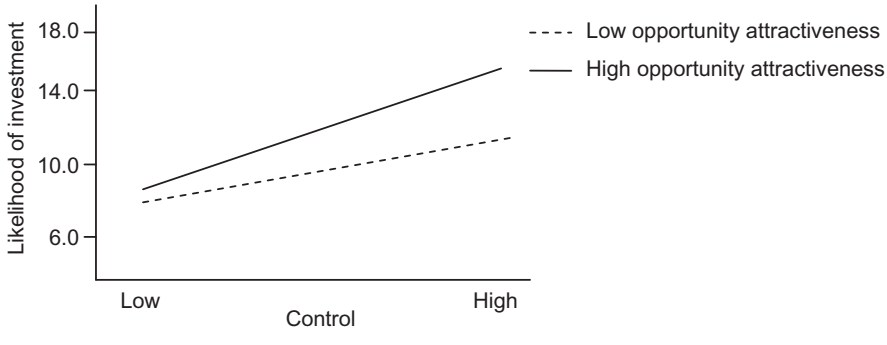


Figure 2

Opportunity Attractiveness–Perceived Control Interaction

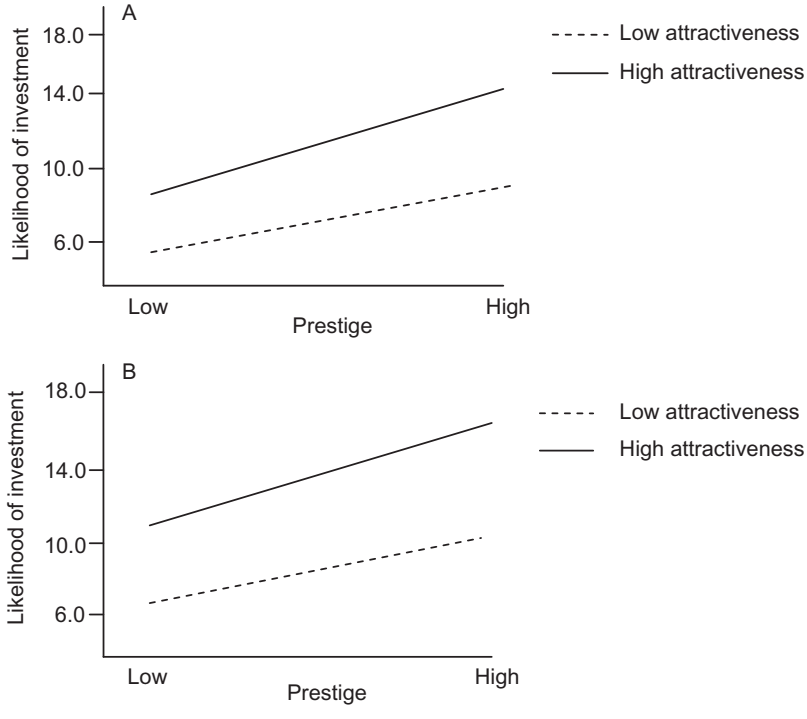


indicates that the negative perceptions of low prestige as indicated by VCs' willingness to invest were reinforced by low control but mitigated by high control. Similarly, the positive perceptions of high prestige were mitigated by low control and reinforced by high control. Thus, VCs were the least willing to invest when prestige and control were both low, and the most willing to invest when prestige and control were both high. These findings provide strong support for hypothesis 2.

Hypothesis 3 was based on the idea that control may interact with opportunity attractiveness in a reinforcing manner. Our analyses revealed a significant interaction effect between attractiveness and control, $F(2,4) = 15.582$, $p < .05$, $\eta^2 = .021$, and estimated marginal means (Table 1) revealed that willingness to invest was substantially greater when attractiveness and control were both high (M = 14.66) than when they were both low (M = 7.07). To better understand this interaction, we graphed the interaction terms in Figure 2. Viewing the graph in conjunction with the estimated marginal means (Table 1), we see that when considered alone, the effect of attractiveness resulted in a mean investment value of 7.76 when attractiveness was low and a high condition mean of 12.71. However, in the presence of low control, the means became 7.07 and 10.88, respectively. In the presence of high control, the means became 8.45 and 14.66,

Figure 3

(A) Prestige–Attractiveness at Low Control (Three-Way) Interaction;
(B) Prestige–Attractiveness at High Control (Three-Way) Interaction



respectively. This indicates that the negative perceptions of low opportunity attractiveness were reinforced by low control but mitigated by high control. Similarly, the positive perceptions of high attractiveness were mitigated by low control and reinforced by high control. Thus, VCs were the least willing to invest when opportunity attractiveness and control were both low, and the most willing to invest when attractiveness and control were both high. These results support hypothesis 3.

Hypothesis 4 argued that a three-way configuration among control, opportunity attractiveness, and prestige exists such that the greatest likelihood of investment comes in play under conditions in which all three characteristics are high. Our analysis demonstrated a significant three-way interaction effect, $F(1,9) = 4.841$, $p < .05$, $\eta^2 = .017$, To better understand the nature of this effect, we examined the estimated marginal means (Table 1) and constructed two interaction graphs (Figure 3a and b). The table and the graphs revealed that willingness to invest was lowest when control, prestige, and attractiveness were all low (M = 5.40). By contrast, willingness to invest was highest when control, prestige, and attractiveness were all high (M = 16.99). In the middle range, a high level of prestige and attractiveness were preferred, but that effect was strengthened in the presence of high control. These findings indicate that the ideal configuration included conditions in which control, prestige, and attractiveness were all at high levels as opposed to any other configuration of these variables. The results also indicate that the optimal configuration resulted in a much higher likelihood of VC investment than when any one of the decision characteristics was considered alone (e.g., high opportunity attractiveness resulted in a

mean investment of 12.76 vs. the three-variable optimal configuration mean investment of 16.99). These results provide strong support for hypothesis 4 and the configurations logic that underpins the hypothesized relationship.

Hypothesis 5 argued that trade-offs exist between characteristics such that suboptimal (i.e., less than ideal) configurations might have equifinal outcomes. The means of the three-way interactions in Table 1 demonstrated some support for this hypothesis as a number of relative trade-offs between characteristics emerged. The characteristics that resulted in the most equifinal outcome were the trade-off between the entrepreneur's prestige and the opportunity's attractiveness. Specifically, when control was low, a relatively equal likelihood of investment existed contingent upon either a highly prestigious entrepreneur *or* an attractive opportunity (8.69 and 8.95). While not as equal in outcome, a trade-off between the two surfaced when control was high. Here, we see that when perceived control was high, the addition of either an attractive opportunity *or a* prestigious entrepreneur can create a relatively similar outcome (10.83 and 12.37, respectively). Perhaps the most interesting trade-off occurred between control and entrepreneurial prestige, for which low levels of prestige were accounted for by high levels of control and vice versa. See, for instance, the configurations with means of 12.37 and 13.45. In sum, these findings show that even when perceived control was high, the presence of a less prestigious entrepreneur and an unattractive opportunity resulted in very low willingness to invest (6.38). However, when either prestige *or* the opportunity became favorable, control acted in a reinforcing manner where the addition of another favorable characteristic considerably increased investment likelihood. To be clear, we are not arguing that the trade-offs and outcomes discussed above were statistically equivalent, but rather that they were practically similar in terms of VCs' likelihood to invest.

Post Hoc Analysis

Although not hypothesized, we also considered the idea that preference for certain investment deal attributes (e.g., control) may vary as a function of individual differences (e.g., age). To investigate this, we conducted a brief *post hoc* analysis investigating VC age as a differentiating factor. To do this, we split the sample using the mean age (49.72 years of age) as a cutoff threshold. We then ran the main effects for the independent variables across the two groups. We found that younger VCs placed less emphasis on control, $F(1,34) = 34.88$, $p < .05$, than older VCs did, $F(1,33) = 56.05$, $p < .05$. Further, our analysis revealed that when holding all else constant, younger VCs placed the most emphasis on the entrepreneur's prestige, $F(1,34) = 124.63$ $p < .05$, while older VCs placed the most emphasis on opportunity attractiveness, $F(1,33) = 122.53$, $p < .05$. While exploratory, these findings suggest that there may be important differences between younger and older VCs. This supports our inclusion of age as a control variable in the analyses reported above. However, more importantly, these findings suggest a need for further research investigating the influence of individual-level variables on VC investment analysis and configurational decision making.

Discussion

Through this study, we demonstrate the importance of control in the VC investment decision-making process. Our primary results suggest, *ceteris paribus*, that perceptions of control influence VCs' willingness to invest in opportunities. Generally, VCs utilize

several types of control mechanisms as a means of reducing uncertainty and mitigating risk (Bonini et al., 2012). However, little evidence exists as to what extent these control mechanisms influence initial investment decisions. Wiltbank, Read, Dew, and Sarasvathy (2009) offer some insight here as their study of angel investors demonstrates that investors who emphasize control experience less investment failures but realize fewer large success events. Our results add to Wiltbank et al.'s work as we find that the degree of perceived control does indeed influence VCs' initial investment decisions, and like angel investors, VCs emphasize control in efforts to reduce downside risk while allowing for upside potential. However, an interesting question emerges: to what degree does a focus on control reduce a venture's upside potential? It may be that very stringent control mechanisms restrict entrepreneurs in a way that they are unable to fully enact (Wood & McKinley, 2010) or optimally exploit (Shane, 2003) an opportunity. Therefore, extremely high levels of control may reduce a venture's ability to maximize return on investment. Investigating this question is clearly an opportunity for future research.

Because we find a direct positive relationship between control and VCs' willingness to invest in ventures, it suggests that investment decisions may hinge on the extent to which investors believe entrepreneurs or entrepreneurial teams are amenable to various control measures designed to mitigate potential agency problems. However, when considered independently, this issue appears to be less influential than the entrepreneur's prestige or the opportunity's attractiveness. In that way, controlling the entrepreneur's actions does not appear to be the VC's first concern. If we view this from a nexus perspective (e.g., Shane, 2003), these findings seem logical because without an attractive opportunity and a capable entrepreneur, venture investment is so unlikely that perceived control becomes largely irrelevant. Thus, in the absence of an attractive opportunity and a prestigious entrepreneur, control is likely to play only a minor role. This may help explain why some studies have not found a significant relationship between VC control and level of investment (e.g., Payne et al., 2009).

Although finding a direct relationship between control and willingness to invest is important, our findings suggest that it is how control interacts with other major decision criteria that provides the best explanation of VC investment decision-making outcomes. Specifically, our results show that control interacts with both the entrepreneur's prestige and the opportunity's attractiveness to influence willingness to invest. These findings are seemingly rational as investing in a highly prestigious entrepreneur or a prosperous opportunity with minimal control heightens the threat of agency risks and may provide an avenue for self-interest seeking (Williamson, 1988). As such, a lack of control over information sharing and the entrepreneur's actions would likely render a deal with a prestigious entrepreneur or an entrepreneur pursuing a highly promising opportunity less desirable. Correspondingly, high levels of perceived control appear to bolster the positive effect of entrepreneurial prestige and opportunity attractiveness. The implication then is that VCs become focused on control when other characteristics are favorable and are more likely to invest in a deal under these conditions when control is high. Establishing the moderating effect of control in the presence of entrepreneurial prestige and opportunity attractiveness contributes to the delineation of boundary conditions (Dubin, 1978) around these more readily established variables.

More telling, perhaps, than the two-way interactions are the results surrounding the three-way interaction, which tests a configurations perspective (Miller & Friesen, 1984; Wiklund & Shepherd, 2005) of VC decision making. Specifically, we find that an optimal configuration is achieved when the entrepreneur's prestige, the opportunity's attractiveness, and the degree of perceived control are high. It is under these conditions that VCs

express the greatest willingness to invest in the venture. Moreover, while VCs would naturally be more willing to allocate financial resources toward an attractive opportunity being pursued by prestigious entrepreneurs who are amenable to VC control, we move beyond this ideal configuration to better understand the more complex trade-offs that occur when one or more of the characteristics are not at an optimal level. Leveraging a central tenet of the configurations perspective (i.e., equifinality), we explore circumstances for which trade-offs between the different characteristics under study may result in similar outcomes or willingness to invest.

In further exploring such equifinal outcomes among prestige, opportunity attractiveness, and control, we note a number of interesting findings. First, in the presence of an attractive opportunity, we find that VC control may serve as a substitute for the entrepreneur's prestige. In other words, if an entrepreneur lacks experience and affiliations, it appears that high levels of VC control can counteract this absence, whereas VCs appear to be willing to forego stringent control when considering an experienced, well-connected entrepreneur. As noted in the Results section, the estimated marginal means indicate a similar level of willingness to invest in situations with high control and low prestige and vice versa. What this suggests is that because the opportunity's attractiveness is the most important decision factor, as long as there is a highly attractive opportunity, VCs are willing to accept either a highly prestigious entrepreneur or a high degree of control. While our results indicate that high levels of both prestige *and* control are ideal, it appears that high levels of prestige *or* control may suffice. Clearly, our methods and data do not tap into the underlying reason for this, but we speculate that VCs assume that prestigious entrepreneurs are equipped with high levels of experience and knowledge that substitute for control. In contrast, less prestigious entrepreneurs lack a track record that makes agency concerns central, so VCs must have strong control mechanisms in place to ensure lesser known entrepreneurs take proper actions.

Next, our analysis also revealed a trade-off between the entrepreneur's prestige and the opportunity's attractiveness. In one instance—when control is low—VCs have similar willingness to invest when either the opportunity's attractiveness is high or when the entrepreneur's prestige is high. In another instance—when control is high—either an attractive opportunity or a highly prestigious entrepreneur results in a relatively similar investment probability. Thus, both cases depict trade-off scenarios that engender similar outcomes. It is also worth noting that the reinforcing effect of high control is further illustrated in the opportunity–prestige trade-off as the willingness to invest is considerably higher for the configurations accompanied by high levels of control. In that vein, our findings suggest that it is not a single evaluative factor (e.g., opportunity, entrepreneur, or control) but instead a nexus of factors that come together in a way that reduces VCs' uncertainty, and thus makes investment more likely. Thus, our findings provide further evidence suggesting that more research is needed to examine why some trade-off configurations are favorable while others are not.

Finally, our *post hoc* analysis using VC age as a grouping variable has implications for future VC research that builds on our findings. Specifically, we found that younger VCs placed less emphasis on control than older VCs. This finding was further validated in one of the *post hoc* interviews we conducted, in which a practicing VC asserted, "After doing this since 1981, if the investor group does not have control, I'll pass." While we do not have detailed data regarding this phenomenon, we speculate that the experience and patience that come with age result in a greater emphasis on the need to control entrepreneurs' actions. Clearly, our study was not designed to investigate the effects of VC-centric characteristics, but because our study provides clear evidence that control is influential in

the VC decision-making process and because it identifies some of the conditions under which control is more or less important, we provide a platform whereby researchers can further investigate the effects of individual differences alongside variables like control. Our data suggest that such effects exist, and we look forward to joining others in exploring these dynamics.

Implications for Practice

Our study provides a number of practical insights for entrepreneurs, VCs, and other parties interested in venture funding decisions. First, our study reinforces prior research showing that opportunity quality and entrepreneurs' reputational characteristics are essential considerations in VC investment decisions. As such, entrepreneurs should recognize that VC funding is unlikely if they cannot demonstrate that an opportunity being pursued is of high potential, and that they have the requisite skills, abilities, and track record to turn the opportunity into a high-performing venture. Along with this understanding, those seeking funding should also be cognizant of the important role that control plays in the preinvestment context. Because each VC investment entails considerable agency risk, securing control is largely a mechanism by which VCs can protect their own best interest and the interest of their limited partners. Thus, resistance to control will likely have an adverse impact on entrepreneurs' ability to secure funding. Moreover, the observed trade-off between prestige and control indicates that unknown or less prestigious entrepreneurs should give particular consideration to their willingness to accept measures of control. Accordingly, those seeking VC funding should consider the degree to which they are willing to accept control mechanisms, and those more accepting of such controls may do well to communicate that to potential VC investors.

With respect to VCs, these findings bring to light how key evaluative factors are weighted by a host of VCs across the venture community. The results of our study provide a baseline with which VCs can benchmark their own evaluation process. Additionally, this study provides insight into aspects of control for practicing VCs. In certain cases, perceived control was shown to rival the importance of other more readily established evaluative factors. Such an emphasis is rightfully merited as the implications of disregarding control prior to investment can have costly implications. Highlighting this point, one VC in our interviews asserted, "[Because of minimal control,] I was stuck in a deal for over a decade until the entrepreneur/founder got pushed out." In a similar vein, another VC noted, "You have an entrepreneur in the driver seat. . . . You say time to sell, he says 'I like the corner office,' and you don't have control." Collectively, our research underscores the importance for VCs to evaluate perceived control in the preinvestment context as partnering with an entrepreneur who resists such control may lead to, among other outcomes, an inability to provide a timely return.

Limitations

The conjoint method utilized in this study overcomes several problems identified in previous studies (e.g., *post hoc* bias), but it does carry its own set of limitations that must be considered. Primarily, the validity of the results may be called into question due to the oversimplification of the study (Heckman & Smith, 1995). In other words, the situation presented by the researcher to the VC in a conjoint study is considerably less complicated than reality in terms of the task and the context. However, removing the specifics of a

situation may help determine basic relationships, thereby effectively removing biases. For example, Franke et al. (2006) demonstrated that VC evaluations may be systematically distorted because of similarities between the VC and the entrepreneurial team in terms of age, education, field of training, professional background, and experience. Further, our approach in the current study may be preferable to related studies that ask respondents to retrospectively review investment decisions. Payne et al. (2009, p. 171), for instance, state that "a possible limitation inherent in [their] study is the potential survivor bias that comes with requesting information from the VC on their most recent venture investments." Our approach removes the survivor bias problem.

A second limitation is that our sample of VC participants was all based in the United States. While we believe our findings are applicable in other developed regions, we must generalize our findings conservatively. Given the substantial differences in social structures, laws and policy, and cultural norms across nations, additional research is needed involving VC participants in other contexts. In particular, legal systems may play a key role in VC investment decisions because there is wide variation across nations with regard to property right protection; patent protection; and the legal rights afforded to labor, creditors, and customers (Alhorr, Moore, & Payne, 2008; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998). Invariably, such factors play an important role in an entrepreneur's evaluation of an opportunity's attractiveness and may limit the type of arrangements that VCs will accept.

A final limitation of our study is that we only consider three venture characteristics in our model. It is likely that other characteristics play a role in VCs' decision-making process. For example, prior research suggests that the geographic location of the venture and investors (Sorenson & Stuart, 2001), specific characteristics of the intended market (Tyebjee & Bruno, 1984), entrepreneurial traits beyond prestige (Hsu, 2007; Macmillan, Siegel, & Narasimha, 1985), and the strength of the presentation (Chen et al., 2009) may also impact VCs' willingness to invest. Further, recent trends in the emergence of entrepreneurial opportunities suggest that social considerations, such as the strength of network ties (Wood & McKinley, 2010), the ability to use resources at hand (Baker & Nelson, 2005), and early planning (Dimov, 2010), are important processes that make venture emergence possible. In this vein, it is possible that social considerations, such as network ties, may moderate the effects of venture and entrepreneurial characteristics on VCs' willingness to invest. Thus, more research is needed to flush out important social processes and to understand how those processes impact VC decision making.

Conclusion

It is readily understood that control is a critical component of the ongoing VC–entrepreneur dyad (Gompers & Lerner, 2004; Hellmann, 1998; Kaplan & Strömberg, 2003, 2004). Our research goes a step beyond this established understanding by systematically exploring the role that perceived control plays in the preinvestment context of new venture evaluation. Our findings provided strong empirical support for a number of hypotheses suggesting that (1) control does indeed play a key role in early stage VC decision making and (2) control becomes more important when simultaneously considered with other factors—specifically entrepreneurial prestige and opportunity attractiveness—when initial investment decisions are made. Distinctively, we find that taking a configurational view of the venture can more completely explain VCs' willingness to invest.

Appendix 1

Attributes and Level Descriptions Presented to Participants

Characteristics of the Entrepreneur

Entrepreneurial Prestige—*Superior:* The entrepreneur is well known for having been involved in a number of successful ventures and is affiliated with a large number of very successful business leaders.

Entrepreneurial Prestige—*Minimal:* The entrepreneur is not well known for his involvement in prior entrepreneurial ventures and is affiliated with very few successful business leaders.

Characteristics of the Opportunity

Opportunity Attractiveness—*Proven:* WPI is based on a business opportunity that has been proven desirable and feasible because it dramatically improves product quality and dramatically reduces production costs. It is expected that the business opportunity will quickly generate cash flows.

Opportunity Attractiveness—*Developing:* WPI is based on a business opportunity that is believed to be desirable and feasible because it slightly improves product quality and slightly reduces production costs. It is expected that the business opportunity will slowly generate cash flows.

Characteristics of Thought Processes

Perceived Control—*Complete:* WPI's founding entrepreneur will be easy to control because of the willingness to sign contracts, giving investors the ability to modify the management team and use staged funding to ensure that performance targets are met.

Perceived Control—*Limited:* WPI's founding entrepreneur will be difficult to control because of an unwillingness to sign contracts that would give investors the ability to modify the management team and use staged funding to ensure that performance targets are met.

Appendix 2

Sample Investment Scenario

This investment opportunity is characterized as follows:

Entrepreneurial Prestige—Minimal. The entrepreneur is not well known for his involvement in prior entrepreneurial ventures and is affiliated with very few successful business leaders.

Opportunity Attractiveness—Developing. WPI is based on a business opportunity that is believed to be desirable and feasible because it slightly improves product quality and slightly reduces production costs. It is expected that the business opportunity will slowly generate cash flows.

Perceived Control—Limited. WPI's founding entrepreneur will be difficult to control because of an unwillingness to sign contracts that would give investors the ability to modify the management team and use staged funding to ensure that performance targets are met.

What is the probability you would invest in this deal?

Low Probability 1 2 3 4 5 6 7 High Probability

If you were to invest in this deal, what is the likely amount you would invest?

Lowest Possible Amount 1 2 3 4 5 6 7 Highest Possible Amount

If you were to invest in this deal, what type of terms would you offer the entrepreneur?

Worst Possible Terms 1 2 3 4 5 6 7 Best Possible Terms

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