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Dancing with strangers? Initial trust and the formation of initial collaborations between new ventures and corporate venture capitals

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Abstract

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Abstract

Theories of initial trust formation posit two distinct perspectives, an institutional and a cognitive account. In an effort to overcome this conceptual impasse, we investigate relevant sources of institutional and cognitive trust in an integrative model and empirically assess the relative importance of each view. We use the context of new venture's initial investment ties with corporate venture capital as these initial inter-organizational relationships are particularly fraught with great risks of misappropriation for new venture's technological resources, and thus, the trustworthiness of corporate investors is an important consideration for new ventures. We find that institutional trust has no direct effect on initial trust in this context; however, not only cognitive processes producing expectations of trust have direct effect on initial trust, but also they moderate the relationship between institutional trust and initial trust.

INTRODUCTION

Trust, defined as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer, Davis, and Schoorman, 1995: 712), has taken center-stage in studying organizational outcomes (Rousseau et al., 1998, McEvily et al., 2003; Dirks et al., 2009). Organizations favor collaborating with trustworthy parties given general consensus about the positive consequences of trust for inter-organizational performance (e.g., Uzzi, 1997; Granovetter, 1985; Poppo and Zenger, 2002; Luo, 2008; Lado, Dant, and Tekleab, 2008). Although evidence abound on the primacy of partner trustworthiness as a selection criteria, confusion haunts scholars about how trust is produced (e.g., Poppo, Zhou, and Ryu, 2008). Blau (1968: 454), for instance, explains how experimentation with small-sized collaborations generate information on partner trustworthiness: "social exchange relations evolve in a slow process, starting with minor transactions in which little trust is required because little risk is involved and in which both partners can prove their trustworthiness, enabling them to expand their relation and engage in major transactions. Thus, the process of social exchange leads to the trust required for it in a self-governing fashion." However, social exchange perspective (Cook and Emerson, 1978; Lawler and Yoon, 1996; Ring and Van de Ven, 1994) is readily unfeasible when initial transactions involve major placement of trust (and great risk) with unfamiliar partners. Case in point, new biotechnology ventures (lacking necessary experience and resources) need to take a "leap of faith" and make a relatively large lump-sum initial commitment fraught with fears of misappropriation in allying with incumbent organizations to transform their knowledge into commercially viable products (e.g., Diestre and Rajagoplan, 2012). Under these circumstances, the parties need to resort to other mechanisms to produce trust, and that initial trust would determine whether a party (e.g., new venture) decides to initiate collaboration with a strange partner (e.g., an incumbent with whom new ventures have not had history of prior collaborations and first-hand knowledge).

Theories of initial trust formation posit two distinct perspectives, an institutional and a cognitive account. Whereas proponents of institutional trust adopt an economic frame and give primacy to trustworthiness based on legal arrangements and social structures with potential to impose sanctions in case of defection (Zucker, 1986; Fukuyama, 1995), the cognitive perspective is anchored in social psychology

thinking and considers categorization processes and stereotypes as the underpinning of trustworthiness (Brewer, 1981). Integrating these accounts with different assumptions, McKnight, Cummings, and Chervany (1998) proposed a framework of initial trust; however, ever since existing empirical studies do not allow for a direct comparison of the predictive power of these perspectives or for combination of these accounts.

This study first identifies specific antecedents to initial trust representative of each perspective and then develop hypotheses regarding the combination of these antecedents. We chose the corporate venture capital (CVC) investments in new ventures as the research setting because this type of collaboration is usually the first collaboration of new ventures with established corporations and, moreover, trustworthiness of corporate investors is a particularly important issue for new ventures. These collaborations characterize a critical tension for new ventures between value creation and value misappropriation, labeled in the literature as "swimming with the sharks". On one hand, new ventures need the resources provided by established firms for value creation (e.g., Alvarez-Garrido and Dushnitsky, 2014), and on the other hand, collaboration means putting their knowledge at misappropriation risk (e.g., Alvarez and Barney, 2001). For these reasons, CVC provides an ideal context for a study about initial trust in inter-organizational collaborations.

Our key contribution to the literature on sources of inter-organizational trust is to establish the relative importance of institutional and cognitive trust in an integrative model, a particularly important topic uncontested from seminal proposal of McKnight, Cummings, and Chervany (1998) (for a review about recent contributions, see McKnight and Chervany, 2006). Going beyond McKnight, Cummings, and Chervany (1998), combination of initial trust sources helps to identifying boundary conditions for each perspective, which is our attempt to reconcile these divergent and assumingly unconnected streams of trust production literature. By doing so, we question the prevalent assumption that institutional trust has a direct effect on initial collaboration and show how its impact is dependent on the cognitive processes producing expectations of trust. Finally, we contribute to the literature linking trust and entrepreneurial financing. This literature takes financier's side (i.e., angel investors or venture capitalists) and her trust in entrepreneur as an agent with potential for opportunistic behavior (for a recent review, see Welter, 2012); however, we demonstrate that entrepreneurs' trust in the financier is also critical in the formation of the collaboration.

CONCEPTUAL BACKGROUND AND HYPOTHESES

Collaborations characterized by high uncertainty, inter-dependence, and threats of opportunism highlight the function of trust (Rousseau et al., 1998). Trust is a type of expectation that rests on the premise that in spite of opportunities and incentives to behave opportunistically, the partner will not do so regardless of control or utilitarian motives deterring opportunistic behavior (Nooteboom, 1996; Chiles and McMakin, 1996). In this sense, trust alleviates the fear of opportunistic behavior (Bradach and Eccles, 1989; Gulati and Nickerson, 2008) and facilitates collaboration. Thus, it is no surprise to expect that trust contributes to explain the variance in the collaboration performance between organizations (e.g., Uzzi, 1997; Granovetter, 1985; Poppo and Zenger, 2002; Luo, 2008; Lado, Dant, and Tekleab, 2008) or the governance structure of collaborations (e.g., Williamson, 1975; Granovetter, 1985; Bradach and Eccles, 1989; Ring and Van de Ven, 1992; Gulati, 1995; Uzzi, 1997; Reuer and Arino, 2007; Gulati and Nickerson, 2008). While scholars tend to agree on direct and indirect beneficial consequences of trust for collaborations, there is less consensus over how trust is produced in collaborations (e.g., Poppo, Zhou, and Ryu, 2008).

Kramer (1999) presents two contrasting images regarding relevant sources of trust: the rational choice and relational models of trust. This dichotomy is widely acknowledged in the literature (e.g., Das and Teng, 2001; Gulati and Nickerson, 2008; McEvily and Zaheer, 2006; Saparito, Chen, and Sapienzam 2004; Zaheer and Harris, 2006; Zahra, Yavuz, and Ucbasaran, 2006; Schilke and Cook, 2013), which possibly reflects the more general disparate views of economic and behavioral perspectives (Zajac, 1992). The rational choice perspective emphasize that trust is a choice based on conscious calculation, resulting in an efficient outcome that attempts to maximize expected gains or minimize expected losses (Coleman, 1990; Williamson, 1993; Hardin, 1992). The rational account of trust takes into account the incentives of the trustee to honor and fulfill trust, which would be in trustee's economic interest to be trustworthy (Hardin, 1992). Therefore, a partner is viewed as trustworthy when negative sanctions such as punishment and damage to reputation in case of defection outweigh the benefits of opportunistic behavior (Lane, 1998). In contrast, relational models of trust tend to focus on the social underpinnings of trust toward a party. This perspective emphasizes social rather than calculative motives that drive trust, including how attitudes and perceptions of trustor, identity-related motives, self-presentational concerns, and a partner's commitment to ways of behaving are key to explaining sources of trust (Kramer, Brewer, and Hanna, 1996; Mayer et al.,

1995; McAllister, 1995; Tyler and Kramer, 1996; Beckert, 2009). The development of relational perspective was a response to the limitations and concerns regarding behavioral assumptions of rational calculation and expectation driven by pure economic instruments. March (1994) observed that rational choice model overstates cognitive capabilities of decision makers and the degree to which they would engage in calculations for making decisions. Furthermore, the rational account under-socializes trust (Granovetter, 1985) and underestimates the role given to affective, motivational, and social processes influencing trust judgments (McAllister, 1995), and thus, propose a narrow view of cognition relevant for trust. Kramer (1999) observes that these disparate positions on trust to a large extent underlie their distinct disciplinary origins and argues that an inclusive reconciliation of these perspectives is a promising way of moving beyond this conceptual impasse. Our study addresses the call for consideration of inclusive sources of trust. In addition, Kramer (1999) specifically proposes "developing a contextualist account that acknowledges the role of both calculative considerations and social inputs in trust judgments and decisions" (p. 574). For this reason, we take on the challenge of arguing for situation-dependency of each perspective in our setting of corporate venture capital investments.

Before turning our attention to the boundary conditions of trust components, we identify specific rational and relational factors that are relevant sources of trust. Consistent also with the notions used in prior literature on initial trust by McKnight et al. (1998), we select factors categorized as institutional trust to represent components of rational perspective and those of cognitive trust as relational factors. In what follows, we argue for a strong conceptual fit for the mapping between institutional trust/rational perspective and cognitive trust/relational model.

Antecedents of initial trust

Institutional trust

Institutions are rules or habits with normative content, which enable and constrain action, apply universally to a group of people, and carry sanctions for non-compliance, including loss of legitimacy or reputation. Trust is based on institutions (i.e., institutional trust) when social behavior is monitored and sanctioned by

legal, political, and social systems (Zucker, 1986; Fukuyama, 1995; Williamson, 1993)[1]. Impersonal arrangements found in institutional structures reduce the risk of misplaced trust by imposing formal and informal rules/routines, which include legal regulations, codes of conduct, corporate reputation, industry standards, explicit rules of behavior, informal norms of behavior set by professional associations (Lane and Bachmann, 1996; Bachmann and Inkpen, 2011). These arrangements are collectively accepted and valid explicit and implicit rules of behavior of participating actors in the system. Not only institutions enable actors by providing guidelines of conduct, but also restrict and sanction actor's misbehaviors. In this study, we indicate two relevant functioning of institutions: legal provision and corporate reputation.

Law is a formal institution that provides the appropriate rules of behavior and necessary sanctions if one party violates the agreement and breaches trust. Legal provisions such as contract law (formal contract) or intellectual property protection (IPP) law align the expectations of both parties (long before they actually engage in business transactions), provide structural assurance, and thus, deter opportunistic behavior of partners. For instance, Dushnitsky and Shaver (2009) find that new ventures protected by IPP regime are more likely to enter collaboration with corporate investors as these legal instruments are effective safeguards from misappropriation risks by competitive corporate investors (Dushnitsky and Shaver, 2009). Therefore, expected punishments from strong enforcement of IPP are the primary "motivator" of trust. Informal sanctioning power of corporate reputation provides the second functioning of institutions (Bachmann and Inkpen, 2011). Corporations value their reputation for integrity as a form of social capital and therefore, they are unlikely to engage in opportunistic behavior that erodes their reputation and causes future loss of business. This form of deterrence-based trust conceptually reflects treatments of trust as reputation in repeated games and is "justified by expectations of positive reciprocal consequences" (March and Olsen, 1989: 27). This is again a rational account of trust, which argues that "if you know that my own interest will induce me to live up to your expectations. Your trust then encapsulates my interests" (Hardin, 1991: 189). Thus, calculus-based incentives associated with maintenance of reputation for integrity is a form of social control present in the social structure and contribute to institutional trust. Hallen, Katila, and Rosenberger

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[1] It should be clear that the object of trust is not institutions (e.g., trust in Police); but institutions serve as a foundation for trusting behavior. Nooteboom (2007) refers to what we call institutional trust "institution-based trust" and trust in institutions as institutional trust and Luhmann (1997) uses the label of "system trust"; Williamson (1993) however uses the term "institutional trust".

(2014) find empirical support that new ventures can affiliate with high-status VC organizations and this affiliation can help new ventures to damage the reputation of corporate investors in case they engage in opportunistic behavior. Therefore, high-status VC organizations can effectively broadcast alleged misbehavior since they occupy a central position in the network of VC co-investments. Taken together, the dominant logic of intuitional trust is rational choice based on calculative trust. Laws act as arbitrators with binding rule and punishment for defectors and high-status third parties are information-controlling intermediaries who separate libel from legitimate complaint with ability to cause future business loss for corporate investors accused of misbehavior. These both contribute to institutional trust in the setting of corporate investments.

Institutional trust is cost-effective as it is collectively maintained over time and their sanctioning power are accessible with almost negligible cost (e.g., government enforces rule of law, corporate reputation building is maintained by the corporate investor partner). In addition, while new ventures pay a premium to be affiliated with high-status VC organizations (Hsu, 2004) and it is rather expensive for new ventures to file and maintain patents, these activities have other substantial benefits irrespective of allaying misappropriation risks in collaboration with corporate investors. Patents and high-status VCs are signals of quality of new ventures (Hsu and Zieodenis, 2013), suffering from a great deal of information asymmetry in markets of financing (Amit, Glosten, and Muller, 1990).

H1. High levels of institutional trust increase the likelihood of initial collaboration.

Cognitive trust

Cognitive trust emerges when the trust-related expectation is based on the salient information regarding a trustee's membership in a social or organizational category. One well known category-based trust is shared membership in a group; individuals tend to attribute positive characteristics (e.g., trustworthiness) to other in-group members (Brewer, 1996) since in-group members share similar values and characteristics– as the perceived similarity among group members increase, the transfer of trust will more readily occur (Williams, 2001). Therefore, awareness of the category membership confers depersonalized trust on the audience, and influences their socially informed judgment about the trustworthiness of others (Kramer, 1999). The list of categories connotative of trust-related expectations includes gender (Orbel, Dawes, and Schwartz-Shea,

1994), race, ethnicity, certain stereotypes, and social class such as status. Consistent with our focus on concepts relevant to organizations, we examine two categorization processes: status and stereotyping.

Status refers to "a socially constructed, inter-subjectively agreed-upon and accepted ordering or ranking of individuals, groups, organizations, or activities in a social system." (Washington and Zajac, 2005: 284). Given that status is a consequence of an actor's network of relations (Podolny, 2005), status of an organization is a function of the number and status of the organizations with which the organization partners (Podolny, 2001). It could be argued that high-status organizations are well connected to other well-connected organizations and hence, central in the network of relationships (Piazza and Castellucci, 2013). We believe that high-status organizations are categorized as trustworthier than low-status ones for the following reason. Granovetter (1985) was first to introduce the idea that embeddedness in social networks is a solution to the problem of trust and provided the initial impetus for the relational models of trust (Kramer, 1999). Status is a valuable social asset that can only be built through a slow process of social collaborations (Blau, 1968) – an investment worthy of protection and accumulation. Because untrustworthy partners are deselected over time and portfolio of trustworthy collaborations on average survives (Vanneste, Puranam, and Kretschmer, 2014), high-status organizations are viewed as desirable and trustworthy by many other organizations as they have received or reciprocated many collaborative invitations to other organizations (Sorenson and Stuart, 1999). Based on this discussion, high-status organizations have reached their central position in the network of collaborations in a social process, with attendant consequence of trust production in a "self-governing fashion" (Blau, 1964). We believe that status can be a proxy for inference about trustworthiness reputation, especially when relevant first-hand experience with the organization is lacking. Our conception conforms to the shadow of past orientation of sociologists towards emergence of trust (Burt and Knez, 1995) arising from embeddedness and closure in networks of collaborations, which induce compliance to norms and trust (Coleman, 1990; Granovetter, 1992). These ideas are consistent with Podolny's evidence (1993), who finds that high-status investment banks are subject to less due diligence than low-status banks when they are chosen to lead a syndicate to underwrite corporate securities. Further empirical evidence by Sullivan, Haunschild, and Page (2007) suggests that engaging in unethical behavior reduces the status of an organization and the quality of its network partners.

Stereotype refers to placing the partner into a general category associated with a stereotype. Stereotypes provide salient social categories on the basis of which trustors could attribute more or less favorable characteristics (Foddy, Plato, and Yamagishi, 2009). One salient information category is the stereotypes associated with nationality: nations have character stereotypes, which are shared beliefs towards personality traits of members of a nation (Terracciano and McCrae, 2007)[2]. With respect to trust-related expectations, these shared beliefs or stereotypes may form the basis of a diffuse trust expectation in so far as their target encompasses the generic features of all the members of that category (e.g., nation). The generalized representation or prototype of key characteristics of another organization (e.g., nation-of-origin) forms the basis of presumptive trust (Kramer and Lewicki, 2010). We define stereotypical trust as a social aggregate construct, which expresses trust-related expectations of the people from one nation towards another nation. Inglehart (1991) observes that stereotypical trust is correlated with common language, absence of historical conflicts, economic performance, and population size of target nation (Inglehart, 1991; for more factors, Delhey 2007; Guiso, Sapienza, and Zingales, 2009). Consequently, stereotypical trust influences the trade of goods, direct investments, portfolio investments, and VC investments (Guiso, Sapienza, and Zingales, 2009; Bottazi, Da Rin, and Hellmann, 2011)[3]. Consumers in each country also evaluate the quality of products in line with nation-based stereotypes and form purchase decisions (for a review see, Al-Sulaiti and Baker, 1998), especially when these consumers are novice or presented ambiguous information on the attributes of the product (Maheswaran, 1994). Ang, Cheng, and Wu (2014) find that high-tech companies faced with fears of misappropriation risk of their technology that invest in China decide based on stereotypical trust; Where local people are regarded more trustworthy, there is a higher likelihood of investment flow, joint venture, and R&D investment in that region. Therefore, we expect to see that new ventures prefer partners located in countries towards which people of new venture's nation hold perceptions of being trustworthy.

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[2] The word stereotype doesn't presume negative connotations and overtones that ordinary language usage conveys. Rather, the content of stereotype can be positive when they enhance expectations conducive to trusting interactions. For instance, "stereotypes that create high expectations of perceived or anticipated warmth or competence enhance the prospectus for trustworthy interactions" (Fiske, Cuddy, and Glick, 2007; Fiske, Cuddy, Glick, and Xu, 2002).

[3] The stereotypical trust also has political consequences. It forms the basis of public opinion about foreign policy, formation of international regimes (Keohane, 1993), military interventions (Brewer et al. 2004), and integration across EU (Genna, 2009).

To avoid "cross-level fallacy" (Rousseau, 1985) stemming from linking stereotypical trust operating at trans-national level to that of inter-organizational level, we focus on arguments related to the relationship between national-societal cultures and organizational trust (e.g., Doney et al., 1998; Johnson and Cullen, 2002). Extent evidence shows that societal culture shapes the general levels of trust in society (Fukuyama, 1995; Delhey and Newton, 2005; Knack and Keefer, 1997) and more specifically, national-societal cultures influence inter-personal and organizational trust within a nation and between nations (for a review of empirical evidence, see Ferrin and Gillespie, 2010). For instance, Huff and Kelley (2003) find that cultures with higher generalized trust (i.e., individualistic rather than collectivist) manufacture organizations with high trust propensity towards other (external) organizations. Whether focusing on problems associated with miscommunications from language differences across cultures (e.g., Elsbach, 2004), incongruent norms/values (e.g., Lewicki and Bunker, 1996), or overemphasizing self-categorizing processes – i.e., belonging to the same nation (e.g., Brewer, 1981), trust-related expectations correlated with national-societal cultures, including inter-national dyadic stereotypical trust, have tangible consequences for organizational trust (further discussions, see Saunders et al., 2010). "Regardless of the general symmetry or asymmetry in levels of trust deriving from the institutional and cultural environments in which partners are embedded, there could be specific trust asymmetry arising from legitimacy spillovers from the country of origin of partners in an international collaboration, such that firms from countries that are viewed by nationals of the focal country as untrustworthy will be seen as untrustworthy as well" (Zaheer and Zaheer, 2006: 25). For instance, MacDuffie (2011: 42-43) suggest that historical mistrust between Japan and China at the national level informs the perceptions of trustworthiness between Japanese automakers and Chinese suppliers (further evidence in, Ertug et al. 2013). Overall, the perceptions of trustworthiness rooted in country-of-origin spills over inter-organizational relationships (Kostava and Zaheer, 1999).

H2. High levels of cognitive trust increase the likelihood of initial collaboration.

Combining multiple sources of trust for partner selection

McEvily and Tortoriello (2011) advocate for a trust theory of context that would explain "when and under which conditions different components of trust are more or less relevant." (p. 41). Given that partner selection is a process influenced by combining multiple judgments (Bitektine, 2011), and in particular, social

as well as calculative judgments influence trust judgments (Krammer, 1999), we analyze how institutional trust based on calculative perspective combine with cognitive trust based on relational perspective. By doing so, we investigate relevant circumstances that determine the scope of each perspective. We argue that the degree of calculative component of status categorization and stereotypical trust differs and that such difference affects the scope of each perspective.

Status categorization is not only an indicator of past endowment of trustworthiness placed by many other organizations through collaboration, but also it can provide strategic opportunities for judgment about future expectations about partner trustworthiness. High-status organizations face a higher opportunity cost of damage to their reputation for integrity than low-status ones do would they engage in unethical behavior (Brass, Butterfield, and Skaggs, 1998) because high-status organizations are centrally positioned and well embedded in the network (Baum et al. 2005; Jensen 2003; Podolny 1993) which increases the efficiency of information supply in the network to a larger radius of actors, faster, and possibly redundantly (Raub and Weesie, 1990). The activities of high-status organizations are largely visible (Rhee and Haunschild, 2006) given that they receive more analyst coverage (Shen, Tang, and Chen, 2014) and attention by media (Castellucci and Ertug, 2010). Consequently, the perception of surveillance by other organizations constraints unethical behavior (Brass, Butterfield, and Skaggs, 1998) because the likelihood of getting caught deters opportunistic behavior, all else being equal (McCabe and Trevino, 1993). In contrast to social control derived from network position, high-status organizations enjoy the audience's benefit of doubt in case of defection compared to low-status ones (Mishina, Block, and Mannor, 2012). With this lacuna in mind, and based on previous discussion, we are careful to suggest that status category consists exclusively of relational component and agree with McEvily (2011) that a combination of rational and relational models to depict a realistic view of partner's trustworthiness based on Coleman's (1990) network closure. Unlike calculative motivations for protection of reputational assets invested by high-status organizations, stereotypical trust is less calculative and operates like a "rule of thumb" (McEvily, Perrone, and Zaheer, 2003: 99). Thus, stereotypical trust can be listed as decision-making based on heuristics; which is defined to be frames of reference that allow quick decision-making (Tversky and Kahneman, 1974). McEvily (2011) contrasts heuristic with probabilistic decision-making involved in trust decisions and associates heuristics with

automatic information processing as opposed to controlled information processing. We apply this general line of thinking to examine how decision-making occurs when heuristics combine with other more calculative components of trust (e.g., institutional trust, and to a lesser extent, status-based cognitive trust) to form mixed-mode social judgments.

Stereotypes represent information that is more easily identified, recalled, predicted, and reacted to (Tajfel, 1981); thus, stereotypes serve the cognitive function of simplifying information and provide efficient shortcuts. In this view, stereotypes regardless of their accuracy for representing reality can be viewed as judgmental heuristics (Bodenhausen, 1990), which are defined as mental shortcuts expediting and simplifying decisions (Kelley, 1971). Gaps in information from rationally-boundedness and resource constraints coupled with uncertainty circumscribe an organization to rely on heuristics. However, due to their biased nature (Tversky and Kahneman, 1974), these heuristics are most likely to be used when better and more precise calculative attributes are lacking. Following this logic, when sources of initial trust with calculative components are low, organizations might compensate this lack by relying on stereotypical trust. That is, in settings with low institutional trust and low status-based trust, organizations resort to compensation heuristics, which is said to occur when higher levels of one attribute can compensate for lower levels on another attribute. In doing so, organizations also save cognitive resources.

H3. The relationship between legal-based institutional trust and initial collaboration is weaker when stereotypical trust is high rather than low.
H4. The relationship between reputation-based institutional trust and initial collaboration is weaker when stereotypical trust is high rather than low.
H5. The relationship between status-based cognitive trust and initial collaboration is weaker when stereotypical trust is high rather than low.

METHODS

Setting

Initial inter-organizational partnerships have imprinting effects for new ventures (Baum, Calabrese, and Silverman, 2000; Milanov and Shepherd, 2013). Among such partnerships is entrepreneur's decision to enter a corporate investment relationship. This is "a minority equity investment by an established corporation in a privately held entrepreneurial venture" (Dushnitsky, 2012). This type of partnership is a particularly appropriate setting in which to study initial trust at tie formation. This setting is appropriate for several

reasons. First, partnerships with incumbents are a double-edged sword for new ventures. On the one hand, valuable complementary resources of incumbents attract new ventures which often possess limited financial and non-financial resources (Park and Steensma, 2012), and on the other hand, corporate investors draw insights from technologies developed by new ventures and complement their own R&D (Dushnitsky and Lenox, 2005 RP; Basu, Phelps, and Kotha, 2006), in ways that are counter to the strategic interests of the new ventures, which pushes new ventures away. The potential misalignment of objectives in these relationships creates highly acute tension – labeled as "swimming with sharks" dilemma (Katila et al., 2008), which often generate a trade-off between value creation and value misappropriation in partner selection for new ventures (Diestre and Rajagopalan, 2012): Anticipating risks of knowledge misappropriation, new ventures trade off resource-rich partners against less dangerous "sharks".

Second, corporate investments are often among first organizational ties with established corporations. New ventures find equity relationships attractive because they have not had sufficient time or financial/non-financial resources to develop their technology to commit to strategic alliances and partnerships; therefore, they engage in equity relationships with corporations, which (1) might enhance the visibility of new ventures by certifying its difficult-to-assess quality (Birkinshaw, van Basten Batenburg, and Murray, 2002; Keil, 2004; Ginsberg, Hasan, and Tucci, 2013) and (2) reduce search costs of locating future appropriate partners and, thereby overcome major obstacles ahead of new ventures for future inter-organizational partnering (Hsu, 2006). Research indicates that equity investments encourage alliance partnerships between funded venture and investing corporation (McNally, 1997; Sykes, 1990; Wadhwa and Phelps, 2010) and increase the likelihood of a funded venture to become an acquisition target (Dimitrova, 2013). From the corporate perspective, corporate investors also prefer to engage in early stage investments/relationships, rather than late-stage ones, which accelerate their process of innovation discovery to complement to, and often substitute for, their own efforts in domains as diverse as new technologies, products, and business models (Chesbrough, 2002; Dushnitsky and Lenox, 2005; Wadhwa and Kotha, 2006; Benson and Ziedonis, 2009; Smith and Shah, 2013; Ernst et al., 2005; Keil, Autio, and George, 2009; Maula, Keil, and Zahra, 2013; Souitaris and Zerbinati, 2014). Consistent with the increasing opportunity costs of waiting for late-stage access to new ventures' technological resources, prematurely corporations pay too

much, relative to other investors, by investing in overvalued new ventures (Gompers and Lerner, 2002), and pay too much in case they acquire their portfolio ventures (Benson and Ziedonis, 2010). Therefore, it appears that investment relationship between a new venture and a CVC is often the first relationship with established corporations, which bears certainly great sensitivities of new venture to the risk of losing their most valuable resources, i.e., their technology and intellectual property.

Initial trust obviates the "swimming with sharks" dilemma, because new ventures place trust in corporate investors, thereby increase the confidence in cooperation. Without initial inter-organizational trust in place, it is unlikely to expect any attendant formal commitments of collaboration (Zaheer and Harris, 2006). As the initial tie formation between new ventures and CVC entails a great deal of misappropriation risks (Dushnitsky and Shaver, 2009; Katila et al. 2008; Hallen et al., 2014), high initial trust encourages new ventures to take a "leap of faith" and enter corporate investment relationships.

Data and Sample

We use VICO database, which contains longitudinal data on 759 VC-backed ventures (and a control group of non-VC-backed ventures) observed from 1994 to 2009. New ventures operate in high-tech manufacturing and service industries[4], and are located in seven European countries – Belgium, Finland, France, Germany, Italy, Spain, and the United Kingdom. To create the sample of VC-backed ventures and obtain complementary information, a number of steps have been taken. First, VC-backed ventures in VICO database are randomly drawn from commercial databases (i.e., Thomson One, VC-pro, and Zephyr) and country-specific venture capital databases (i.e., the yearbooks of the Belgian Venture Capital & Private Equity Association and the Finnish Venture Capital Association, the ZEW Foundation Panel for Germany, the Research on Entrepreneurship in Advanced Technologies (RITA) directory and Private Equity Monitor for Italy, the José Martì Pellón Database for Spain, and the Library House (now Venture Source) for the UK). Further, The accuracy of data is cross-checked by cross-country native-speaking teams of university researchers, using publicly available information such as the website material of new ventures and venture

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[4] Ventures included in VICO operate in the following high-tech manufacturing and services industries: nanotechnology, biotechnology, pharmaceuticals, computers, electronic components, telecommunications equipment, precision, optical and medical instruments, robotics, aerospace, software, telecommunications services, internet and multimedia services, web publishing, renewable energies, R&D and engineering services.

capital firms, press releases, and prospectus if a venture goes public. To be included in the final sample, new ventures had to be independent at foundation and less than ten years old at the first round of financing; additionally, the time of receipt of first-round VC financing had to between 1994 and 2004. VICO database excludes leveraged buyouts, real estate, distressed buyouts and other private equity investments. Additionally, to alleviate concerns of survivorship bias, database contains both surviving ventures (i.e., IPOed or remained privately held and independent) and non-surviving ventures (i.e., acquired, bankrupt, or termination of operation) by the end of observation period.

VICO database includes data on the new venture's characteristics such as address, sector of operation, longitudinal accounting data from Bureau Van Dijk, patenting data from European Patent office, and rounds of financing data such as year of investment, identity of investors and the investment amount. We double-checked the identity of all CVC investors, their locations, and collected geographic coordinates of parent corporations of CVC investors from Google Maps API Web Services.

After excluding observations with missing data, the sample size is 658 ventures, which received 1,577 VC rounds spanning from 1994 to 2009. 121 of these ventures received VC financing from 100 unique CVC investors. Because we are interested in initial tie between a unique CVC and new venture, we leave out observations that a given CVC investor continues investing in a new venture in follow-on rounds, which amounts to 41 out of 175 rounds of CVC financing. Applying this above filter, CVC investors participated in 134 out of 1,577 VC rounds (i.e., 8.5 percent). The total number of CVC investments is 145 because ventures received multiple corporate investments in some rounds.

Measures

Dependent variable

To explore with whom new ventures form initial ties, we perform a dyad analysis. Dyad analysis allows us to investigate factors that drive new ventures' partner-selection decisions among heterogeneous CVC investors. To create the dyad between a CVC investor and a venture at each round, we consider all possible combinations between new ventures and each unique CVC investor at a given round of financing (i.e., 1,577 venture-rounds $\times$ 100 CVC investors). Given our interest for initial tie formation, we remove 189 dyads with prior realization of investment to arrive at 157,511 dyads. The unit of analysis is dyad and dependent

variable, Realized$_{ij}$, takes the value of one if venture$_j$ received CVC$_i$ in a given round of financing, and otherwise zero. There are 145 realized investments versus 157,366 counterfactual non-realized investments.

Independent variables

IPP regime. The strength of IPP regime depends on the industry in which new venture operates. Industries with effective legal defenses provided by IP laws, following Dushnitsky and Shaver (2009), include pharmaceuticals, biotechnology, biological products, chemical products, surgical instruments and other medical equipment. We set IPP regime to one in these industries, and zero otherwise.

VC centrality. Following Hallen et al. (2014), we use eigenvector centrality which captures the informational advantage of centrally positioned actors to broadcast alleged misconduct of CVC investors, thereby activating reputation mechanism of institutional trust. Several steps are taken to operationalize VC centrality in the same manner as Hallen et al. 2014. First, by using Thomson One database we create an adjacency matrix, which considers two VCs as adjacent to each other if they have syndicated a round of financing in a venture in the prior five years. Next, we compute the eigenvector corresponding to the largest eigenvalue of the adjacency matrix. To allow for comparability across years, we then normalize the measure by the maximum obtained in each year (our results are robust to this normalization). Finally, we define VC centrality at each round as the maximum normalized eigenvector centrality of all the participating VCs up to the focal round in the new venture.[5]

CVC status. We use the normalized eigenvector centrality of CVCs obtained from the same procedure used in computations of VC centrality.

Stereotypical trust. Consistent with prior research (Guiso, Sapienza and Zingales, 2009; Bottazzi, Da Rin and Hellman, 2011), we obtain our measure of stereotype-based trust from a survey conducted by Eurobarometer in 1996 (i.e., the year with the last publicly accessible survey containing the forthcoming trust-related question). The Eurobarometer surveys, promoted by the European Commission, assess the public opinion about issues ranging from individual national priorities to integrated European organizations. About

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[5] Thomson One under-represents VC investments in Europe (Colombo and Shafi, 2014). Unfortunately, to the best of our knowledge, there is no better alternative record of investments appropriate for calculating network measures of VCs in Europe. We acknowledge the limitation of the measure of VC centrality used in this study. However, we believe that the use of the maximum score of centrality up to the focal round, as suggested by Hallen et al. (2014), alleviates concerns about the quality of this measure.

thousand individuals in each European country responded to each survey. The question of interest to our research asked how much respondents trust their fellow citizens and the citizens of each of the other countries in the European Union (and several other non-EU countries such as US). Specifically, respondents were asked the following question: "I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust, or no trust at all." We first recoded the answers to the trust question from 1 (i.e., no trust at all) to 4 (i.e., a lot of trust). We then calculated the mean value of the responses for each pair of countries to obtain stereotypical trust.

It is noteworthy to mention two reassuring points on the interpretation and quality of this construct. Given the explicit emphasis on people from specific country as the target of trust, stereotypical trust is the perceived trustworthiness of people in the target nation rather than the dispositional trusting behavior of individuals towards a generic citizen of a different country (Guiso et al., 2009). Regarding the quality of such construct, Peabody (1985) found that Europeans generally agree on the national character stereotypes of European nations (as well as U.S.).

Control variables

Because industry overlap is a proxy for competition (Dushnitsky and Shaver, 2009) and show increased abilities of corporation for misappropriation, we control for Industry Overlap. Additionally, expectations of competition rather than cooperation might generate negative feelings of trustworthiness (Fiske and Ruscher, 1993). We set industry overlap to one if the venture and the parent corporations of CVC operate in the same industry, otherwise zero. We define industries based on the three-digit (i.e., group-level) NACE rev. 2 industry classification codes. If there are more industry classification codes for one venture or parent corporation of CVC, we set industry overlap to one if there is any match on industry classification codes. We control for Venture age as the number of years since foundation of the venture, and Round as the ordinal count (1st, 2nd, etc.) of the current financing round. Additionally, we use the ventures' citation-weighted patent stock (Citation Weighted Patent Stock) since corporate investors are keen on opening a window on the technological resources. To create this measure, we first count the number of annual successful (i.e., granted) patent applications of each venture in the European Patent Office, dated at the application year. Second, we

weight each successful patent application by their forward citations five years subsequent to filing and then use a 15 percent knowledge-depreciation rate (Hall, Jaffe, and Trajtenberg, 2005) to capture the economic importance of patents. Since new ventures might have heterogeneous quality that influence her attractiveness for investors, we track the exit outcomes of ventures up to 2009 and set the Venture quality to one if the venture managed to go through an IPO or an acquisition successfully, otherwise zero. [6] As the likelihood of tie formation between VCs and new ventures decreases with geographical distance (Sorenson and Stuart, 2001), in the set of control variables we include Distance, which measures the geographical distance in thousand kilometers between the focal venture and the headquarter of the CVC investor's parent corporation. Prior CVC investors is a dummy variable with a value set to one if the focal venture received CVC investment in any prior round and zero otherwise. We also take into account the relative availability of CVC versus IVC (CVC to IVC inflow) by calculating the ratio of annual CVC inflow to the annual IVC inflow in each country-year.

RESULTS

Table 1 displays descriptive statistics and the correlation matrix of all variables (at the dyad level). The mean of realized initial CVC investment is 0.001, which is the ratio of 145 realized initial CVC ties to the 157,511 possible investments. About 11 percent of dyads operate in the same industry, and about the same in industries with strong protection of IP. Approximately 32 percent of venture rounds experience a successful exit in the form of IPO or acquisition. The correlations between variables are mostly low, and computations of variance inflation factors and condition indices don't suggest concerning issues of multicollinearity, since none of these values is close to cutoffs of 10 and 50 (Belsley, Kuh, and Welsch, 2005).

Insert Tables 1 about here

We estimate the likelihood that a focal venture receives a round of financing from a unique CVC for the first time by employing a logit model. We use a cross-sectional analysis and cluster standard errors at the venture level to control for non-independence of observations in different rounds for a given venture. Table 2a

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[6] We are aware that this ex post measure has several limitations, including truncation issues for recently funded ventures and its potential endogenous nature with respect to investor identity (Dushnitsky and Shaver, 2009).

reports the results of the estimates, and Table 2b presents the average marginal effects of model with interaction terms.

<center>Insert Tables 2a and 2b about here</center>

Model I presents the baseline regression. First we consider the estimates related to control variables. Industry overlap is positive and significant (p<0.01), suggesting that new ventures seek complementary assets offered by same-industry corporation despite increased misappropriation risks these ties engender. The coefficient of Round is negative and significant (p<0.1); Venture age is negative, however, non-significant. Whereas the Citation weighted patent stock is positive and statistically non-significant, Venture quality is positive and significant (p<0.05); the latter is possibly due to attraction brought about by non-financial resources of CVCs not readily available from alternative investors (e.g., IVCs) – or the contributions of these investors for ex-post success. The coefficient of Distance is negative but non-significant, which might suggest that CVC investors are willing to pursue and access diverse European geographic markets by investing in geographically distant targets (Ernst & Young, 2002). Prior CVC investors is also non-significant and lastly, the coefficient of CVC to IVC inflow is positive and statistically significant (p<0.05).

Let us now turn to the first and second hypothesis, whereas IPP regime and VC centrality are positive and statistically non-significant, the coefficients of Stereotypical trust and CVC status are positive and significant (both, p<0.01). The average marginal effect of Stereotypical trust (CVC status) is 0.00275 (0.00185); Holding all remaining variables at mean, the probability of initial tie formation increases by 152 (29) percent when Stereotypical trust (CVC status) increases by one standard deviation from its mean. Indeed, we cannot reject the null of hypothesis 1, but we can reject the null of hypothesis 2.

In Model II-IV, we investigate whether the institutional trust and category-based trust combine to influence initial trust. In Model II, the interaction between Stereotypical trust and IPP regime is negative and significant (p<0.05), supporting H3. To better interpret this result, we report in Table 2b the average marginal effect of Stereotypical trust under two IPP regimes. Model II in Panel A shows that the average marginal effect of Stereotypical trust is equal to 0.00284 (p<0.01) under a weak IPP regime and 0.00193 (p<0.05) under a strong IPP regime. Holding all remaining variables at mean, if a new venture is protected by a strong IPP regime, the estimated likelihood of forming initial tie is slightly below two times higher

(%170) for an increase of one standard deviation from mean of Stereotypical trust. Under a weak IPP regime, the corresponding increase in the likelihood of tie formation is substantially smaller (+24%). Figure 1 plots the likelihood of initial tie formation under different IPP regimes over Stereotypical trust, showing graphically the same finding.

To test H4, as shown in model III of Table 2a the interaction between Stereotypical trust and VC centrality is negative and significant ($p<0.05$). Calculated from Model III, in Table 2b, average marginal effects are presented. In terms of economic significance, when all variables are set at their mean except for VC centrality, a change of one standard deviation from mean of Stereotypical trust increases the likelihood of tie formation by +172 percent for the minimum value of VC centrality and +109 percent when VC centrality is set to a value equal to one standard deviation above the mean. In figure 2, we show how the extent of this effect related to Stereotypical trust declines with increasing values of VC centrality in support of H4. Overall, these results related to Model II and III suggest a substitution effect; European new ventures are more attracted by CVC investors located in trustworthy countries when institutional trust are ineffective (i.e., IPP regime) or less effective (i.e., VC centrality).

Finally In model IV, the coefficient of interaction term between CVC status and Stereotypical trust is negative and significant ($p<0.01$), which supports Hypothesis 5. The average marginal effects of CVC status are presented at different values of Stereotypical trust in Table 2b Model IV. For instance, with CVC status set to the minimum value, the marginal effect of Stereotypical trust is equal to 0.00258 ($p<0.01$) and with the CVC status at the one standard deviation above the mean, the corresponding value is 0.00281 ($p<0.01$). In terms of economic significance, when all variables are set at their mean except for CVC status, an increase of one standard deviation from mean of Stereotypical trust increases the likelihood of tie formation by +163 percent for the minimum value of CVC status and +127 percent when CVC status is set to value equal to one standard deviation above the mean. Figure 3 also depicts the effect of Stereotypical trust and CVC status in predicting initial tie formation.

Insert Figure 1-3 about here

We performed several robustness checks, which are available upon request from authors. First, we include a set of variable that might impact the tie formation between new ventures and CVC, and the initial

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trust levels. We included round size because ventures with greater financial resource needs might be under pressure to collaborate with CVC investors (Katila et al., 2008). Although we have data of round size for approximately two-thirds of the observations, results remain unchanged despite reduced sample size, suggesting negligible omitted variable bias. Moreover, as we expect CVCs that belong to larger parent companies to be more attractive to new ventures, we control for parent company's relative size by including a variable of CVC size. CVC size is the natural logarithm of the ratio of the sales of the parent corporation of the focal CVC investor to the average sales of all corporations in the industry (defined at NACE Rev. 2 three digit, data were obtained from the Amadeus and Orbis databases) in the year of the investment round. The inclusion of CVC size doesn't change our results. Furthermore, if the CVC program is a wholly owned subsidiary, we expect less fear of misappropriation since the CVC investment is made through a dedicated subsidiary (Dushnitsky and Shaver, 2009). The inclusion of this variable doesn't change our results. We include fixed effects of country of new ventures, country of corporation investors, and results remain unchanged. We insert country overlap since entrepreneurs self-categorize themselves with investors from their own country and viewing them more trustworthy investors (Brewer, 1981). Not surprisingly, there is positive high correlation between country overlap and stereotypical trust (0.58, p<0.01). Country overlap becomes significant (p<0.01), and making stereotypical trust insignificant in the main model. However, results in all interaction models remain unchanged. Inserting the residual of country overlap from a regression based on stereotypical trust, however, shows that both the residual and stereotypical trust have significant positive impact on the initial relationship. We include a dummy for neighboring countries and results remain the same. We include variables regarding ease of communication such as common official language and common spoken language obtained from Melitz and Toubal (2012) (all significant at p<0.01). We control for cultural distance as it is shown to play (negative) effect on inter-organizational trust (e.g., Luo, 2002; Huff and Kelley, 2003; Zaheer and Harris, 2005). For this reason, we use six dimensions of Hofstede (2010) measures of cultural distance (i.e., power distance index, individualism vs. collectivism, uncertainty avoidance index, masculinity vs. femininity, long-term orientation vs. short term orientation, indulgence versus restraint) between new venture's country and investor's country (from 1 for the lowest to 120 for the highest), and results remain unchanged. We control for other institutional variables affecting

partner selection (e.g., Roy and Oliver, 2009), which are found specifically to affect VC syndication decisions (Cumming, Schmidt, and Walz, 2010). These controls include rule of law, efficiency of judicial system, risk of contract repudiation, risk of expropriation, and civil vs. common law in the country of new venture (all significant at p<0.01) obtained from LaPorta, López-de-Silanes, Shleifer and Vishny (1998), and the difference of these values between the country of new venture and those of investors' country. Results remain unchanged. Fixed-effects of country of new ventures and investors also don't change results.

Second, we test different specifications of our model. We use conditional logit regressions with grouping on new ventures that control for latent venture characteristics. Variables that don't change across ventures such as Venture quality and ventures never backed by any CVC drop out in this type of analysis. Despite lower sample size, we obtain similar results. Furthermore, we cluster standard errors on CVCs rather than ventures to take into account the non-independence of observations within investors. The results remain unchanged. We also use conditional logit regressions with grouping on investors, and the results are unchanged. Finally, we estimate a rare event logit regression because the realized investments are approximately a thousand times less frequent than non-realized investments (King and Zeng, 2001). A rare event logit regression corrects the bias from overestimating (underestimating) the probability of unrealized (realized) dyads in logit models. The coefficients remain unchanged, suggesting negligible bias.

Additional analysis

We tested several hypotheses regarding how status-based cognitive trust interplay with institutional trust. A partner with high-status categorization is less likely to engage in misappropriation behavior when the threat of damage to their reputation is high. We believe that institutional sources of trust impose constraints and sanctions that will have a relatively stronger effect on the perceived trustworthiness of high-status organizations. This is due to higher marginal costs for high-status organizations in case of defection as these organizations have undergone more investments in developing favorable reputational assets (Afuah, 2003; Dasgupta, 1988; Hill, 1990; Scott and Walsham, 2005). In particular, in the presence of institutional trust organizations perceive more behavioral control over high-status organizations than low-status ones because institutional means of trust are viewed to imply more negative and serious implications and that perceptions

of behavioral control are strong precursors of behavioral intentions to form initial collaboration (Azjen, 1991).

In addition, we have reason to believe that a low-powered organization can gain power and counterbalance the power possessed by a high-status organization and in this way, a low-powered organization can alleviate the extent of opportunistic behavior from high-powered actor. Acquisition of power, which is gaining access to and control over valuable resources reducing dependency, can substitute lack of trust in the collaboration with high-powered actors because power can serve to coordinate expectations in the collaborations by conveying credible retaliation threats (Bachmann, 2001, 2010). There are two ways to decrease the power difference, which likely alleviates the extent of opportunistic behavior from high-powered actor (Brass, Butterfield, and Skaggs, 1998). First, an organization can affiliate with a high-status organization to gain status and power. Therefore, we posit that lower-difference status decreases the extent of opportunistic behavior by high-powered actor. Similarly, IPP regime can block corporate investors to gain some control over the new venture's resources by successful misappropriation (Katila et al., 2008). Thus, IPP regime maintains the power in the collaboration and such maintenance of power should be more visible in relation to a powerful actor.

Given these arguments, we interact IPP regime and CVC status, and VC centrality and CVC status. Regarding the former, our empirical results cannot support that the relationship between legal-based institutional trust and initial collaboration is stronger when status-category trust is high rather than low ($\chi^2(1)=0.08$). Holding all other variables at their mean, the increase of CVC status by one standard deviation from its mean increase the likelihood of 29 percent under weak IPP regime, not substantially different from 32 percent under a strong IPP regime. One explanation could be that sanctions are reliable when "exchange relationships are clearly delimited, the level of uncertainty is low, and enforcement is easy" (Humphrey and Schmitz, 1998: 37). The results could suggest that enforcement of IPP regime for new ventures requires extensive financial and legal resources, more so when the CVC is viewed resourceful. Only when new venture is affiliated with resourceful organizations, the threat to pursue aggressively infringement lawsuits is credible (Colombo and Shafi, 2014).

Regarding the interaction term between VC Centrality and CVC status, the result is positive and significant (p<0.01). For instance, with VC centrality set to the minimum value, the marginal effect of CVC status is equal to 0.00141 (p<0.01) and with the VC centrality at the one standard deviation above the mean, the corresponding value is 0.0022 (p<0.01). In terms of economic significance, when all variables are set at their mean except for VC centrality, an increase of one standard deviation from mean of CVC status increases the likelihood of tie formation by +22 percent for the minimum value of VC centrality and +36 percent when VC centrality is set to value equal to one standard deviation above the mean. Since we are unable to disentangle the effect of trust from status homophily or resource complementary prevalent in making partner selection decisions (Chung, Singh, and Lee, 2000), we cannot convincingly argue for the moderating role of status-based trust in this case neither.

Discussion and Conclusion

The degree of risk inherent in any transaction is generally negatively correlated with time, information, and control (MacCrimmon and Wehrung, 1986: 14-19). Lack of first-hand information about trustworthiness on an exchange partner, lack of sufficient time (e.g., to delay CVC tie formation in European context), and absence of resource – which reduces an organization's control over its actions (Pfeffer and Salancik, 1978) accentuates the risk in collaborations. Trust enables risk-taking in relations when there is uncertainty, interdependence, and fear of opportunism, as is the case in the relationship between new ventures and CVCs. Acknowledging the simultaneous dependency of new ventures and her vulnerability to the actions of corporate investors, in this study, we investigated the sources of initial trust warranting initial inter-organizational relationships. While we expected that institutional trust and cognitive trust separately and in combination affect the initial trust and thereby encourage confidence in initial cooperation, we lack empirical support to the direct role of institutional trust. Although prior research shows small ventures are at a disadvantage to effectively use IPP (Lanjouw and Schankerman, 2004), legal protection is shown to be particularly relevant when both the new venture and parent of corporation operate in the same industry (Dushnitsky and Shaver, 2009; Colombo and Shafi, 2014). As same-industry corporations have the capabilities to assimilate the technology of new ventures, increasing the payoff of opportunistic behavior, these conditions of heightened risk from competitive same-industry partners underscore the role of legal

defenses. Additionally, the effectiveness of corporate reputation mechanism to enhance trust depends on the extent to which network is dense (for two popular arguments supporting a positive correlation between trust and network density, see Coleman, 1990 chapter 5,8,12 discussing trust and social capital, and Granovetter, 1985 on embeddedness and trust). In corroboration of moderating role of network density in trust in this specific context, Hallen et al. (2014) found that empirical support of reputation mechanism in U.S., whose syndication network among VC investors is well-developed and dense, whereas in Europe, Colombo and Shafi (2014) didn't find empirical support in a replication attempt of Hallen et al. (2014). This attests to the claim that "for any theory of organizational trust, the devil is in the details, and the details are in the context" (Kramer, 2006: 13).

Institutional trust has been assumed to have direct effect when administered by an authority with legal power (Zucker, 1986) or network-vested power. This study suggests the cognitive trust may be even more powerful in contexts lacking institutional trust or alternatively complementing those of institutional trust. Therefore, the theoretical implication is that the (perceived) effectiveness of institutional trust is cognitive, as shown in this study. This finding has important implications for instituting effective institutional trust, where institutional trust provides perceptions of safety in building initial relationships, thereby allowing mutual task performance to be the first priority of organizations and managers rather than self-protection (Sitkin, 1995).

We have a number of limitations. First, we don't measure trust directly and assume that realization of cooperation is an outcome of high initial trust, an assumption common in prior literature (Gulati, 1995). We believe here that trust promotes cooperation (because cooperation may occur for other reasons such as coercion; here we believe this case to be unrealistic) and only when high-levels of inter-organizational trust in partner cooperation exist, then partners would be willing to enter a formal commitment of collaboration (Das and Teng, 1998). We further adopt an all-or-nothing view towards initial trust consistent with Williamson (1993), who argues that the decision to trust is discrete. Conversely, our paper bridges two dominant paradigms of measurement of trust: behavioral measures and attitudinal measures (McEvily, 2011: 1268). Glaeser et al. (2000), in one of the few studies exploring the inter-connection of these views, questioned the external validity of attitudinal surveys by suggesting that their low correlations with

behavioral measures (with the exception of attitudinal questions about trusting strangers). We show that in a real setting of investments (and not a trust game), attitudinal surveys (i.e., questions related to stereotypical trust) could have meaningful correlations with behavioral intentions of individuals to trust. For this reason, we read the evidence as suggestive of a correspondence across measurement approaches. Our second limitation related to the fact that trust is a necessary, but not sufficient, condition for market transactions (Ring and Van de Ven, 1992); Partner selection might also take into account other considerations such as possible industry-specific resource contributions such as marketing and distribution channels of corporate investors (Chung, Singh, and Lee, 2000; Keil, Maula, and Wilson, 2010); Although we try our best to control for some of these observable considerations, we cannot rule out idiosyncratic unobservable factors.

Future research may investigate if trust is a mechanism for prior finding of positive effect of CVC investors on performance. As high levels of initial trust are necessary to establish cooperation in the first place, the maintenance of trust after relationship initiation can induce performance in the relationship by reducing coordination costs. Moreover, we suspect that entrepreneurs view the decision to enter relationships taking into consideration only misappropriation risks and determinants of initial trust, and don't weigh these risks against opportunity costs associated with avoiding disclosure of their knowledge. Therefore, inclusion of prospective performance into the decision set of entrepreneurs likely improves the fit of models predicting the likelihood of tie formation between new ventures and CVCs, and in turn, alignment between initial trust and characteristics of CVC such as their abilities and incentives for misappropriation will lead to improved performance for new ventures.

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Table 1 – Descriptive statistics and correlation matrix

Variable	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1. Realized	0.001	0.030	---											
2. Industry overlap	0.111	0.314	0.018	---										
3. IPP regime	0.117	0.322	0.002	-0.053	---									
4. VC centrality	0.069	0.154	0.001	0.011	-0.001	---								
5. Round	2.375	1.766	-0.008	-0.001	0.027	0.297	---							
6. Stereotypical trust	1.676	0.308	0.031	-0.038	-0.007	0.02	-0.057	---						
7. Venture age	3.750	3.135	-0.007	-0.003	0.000	0.109	0.384	0.011	---					
8. Citation weighted patent stock	0.156	0.942	0.001	-0.019	0.042	0.022	0.073	-0.030	0.054	---				
9. Venture quality	0.320	0.467	0.007	-0.020	0.092	0.194	0.04	0.066	0.005	0.069	---			
10. Distance [a]	2.651	3.215	-0.003	0.147	-0.008	-0.018	-0.002	-0.153	0.005	0.002	-0.012	---		
11. CVC status	0.044	0.128	0.012	0.072	0.003	0.012	0.044	-0.039	0.028	0.006	-0.013	0.353	---	
12. CVC to IVC inflow	0.063	0.049	0.011	0.018	-0.047	-0.019	-0.276	0.059	-0.245	-0.010	0.064	0.001	-0.010	---
13. Prior CVC investors	0.103	0.304	0.001	0.014	0.031	0.137	0.283	0.031	0.147	0.064	0.042	-0.013	0.016	-0.063

N=157,511. [a] The distance is expressed in thousand kilometer

Table 2a - Regression results of the dyad-level analysis: logit model for the likelihood of initial CVC-new venture dyad forming[a]

	Model I	Model II	Model III	Model IV
IPP regime	0.320 (0.221)	3.428** (1.395)	0.324 (0.221)	0.321 (0.221)
VC centrality	0.304 (0.551)	0.304 (0.544)	7.599** (3.392)	0.344 (0.547)
Stereotypical trust	3.005*** (0.255)	3.222*** (0.286)	3.247*** (0.270)	3.149*** (0.255)
CVC status	2.013*** (0.376)	2.023*** (0.376)	2.029*** (0.375)	7.202*** (1.835)
Stereotypical trust × IPP regime		-1.619** (0.734)		
Stereotypical trust × VC centrality			-3.779** (1.876)	
Stereotypical trust × CVC status				-2.866*** (1.038)
Industry overlap	1.298*** (0.204)	1.302*** (0.203)	1.297*** (0.204)	1.295*** (0.205)
Round	-0.183* (0.095)	-0.184** (0.093)	-0.191** (0.096)	-0.188** (0.094)
Venture age	-0.045 (0.032)	-0.046 (0.032)	-0.044 (0.032)	-0.045 (0.032)
Citation weighted patent stock	0.035 (0.098)	0.039 (0.097)	0.037 (0.097)	0.033 (0.098)
Venture quality	0.363** (0.182)	0.359** (0.182)	0.370** (0.182)	0.366** (0.182)
Prior CVC investors	0.373 (0.335)	0.375 (0.335)	0.399 (0.337)	0.380 (0.336)
Distance	-0.014 (0.031)	-0.014 (0.031)	-0.014 (0.031)	-0.019 (0.033)
CVC to IVC inflow	4.340** (2.141)	4.304** (2.149)	4.298** (2.151)	4.314** (2.148)
Constant	-12.859*** (0.577)	-13.290*** (0.666)	-13.334*** (0.610)	-13.126*** (0.576)
− Log pseudo-likelihood	1043.692	1041.238	1040.966	-1041.700
Likelihood ratio χ^2	244.167***	249.982***	257.142***	251.530***
Wald χ^2 test, H_0: coefficients of interaction terms=0 (degrees of freedom)	——	4.87** (1)	4.06** (1)	7.63*** (1)

N=157,511. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.
[a] Robust standard errors appear in parentheses clustered around 658 firms.

Table 2b - Average marginal effects

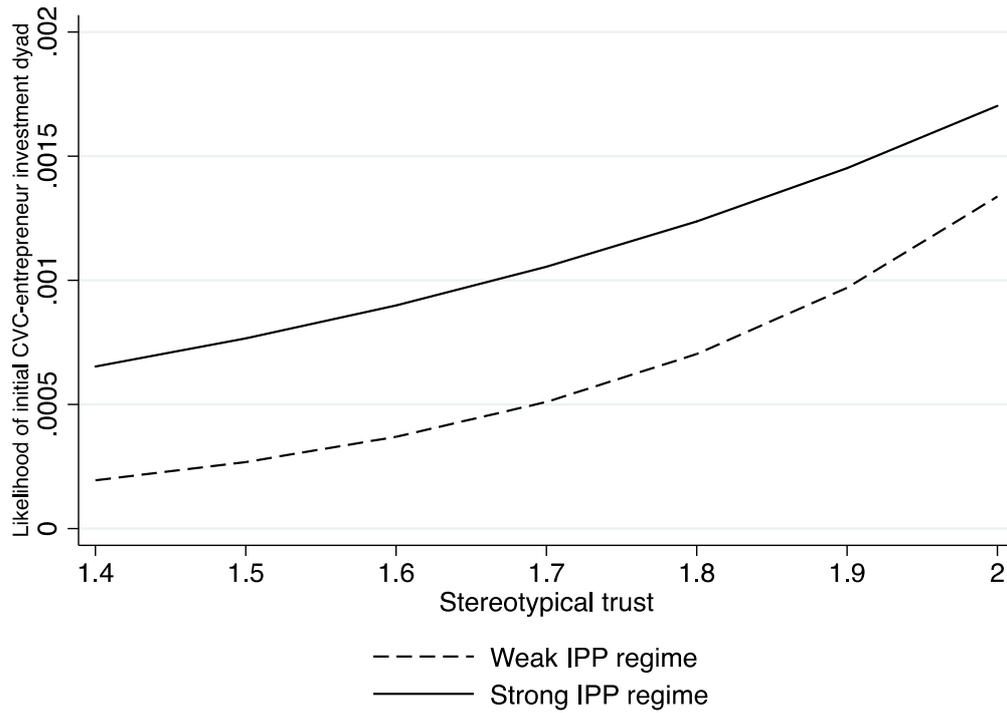|	Stereotypical trust
Panel (A)	**Model II**
Weak IPP regime	0.00284*** (0.00035)
Strong IPP regime	0.00193** (0.00086)
Panel (B)	**Model III**
VC centrality at minimum	0.00293*** (0.00038)
VC centrality at mean	0.00270*** (0.00032)
VC centrality at mean + one S.D.	0.00225*** (0.00054)
Panel (C)	**Model IV**
CVC centrality at minimum	0.00258*** (0.00031)
CVC centrality at mean	0.00264*** (0.00031)
CVC centrality at mean + one S.D.	0.00281*** (0.00043)

Figure 1 – Stereotypical trust and the likelihood of a CVC-new venture investment dyad: the moderating effect of IPP regime
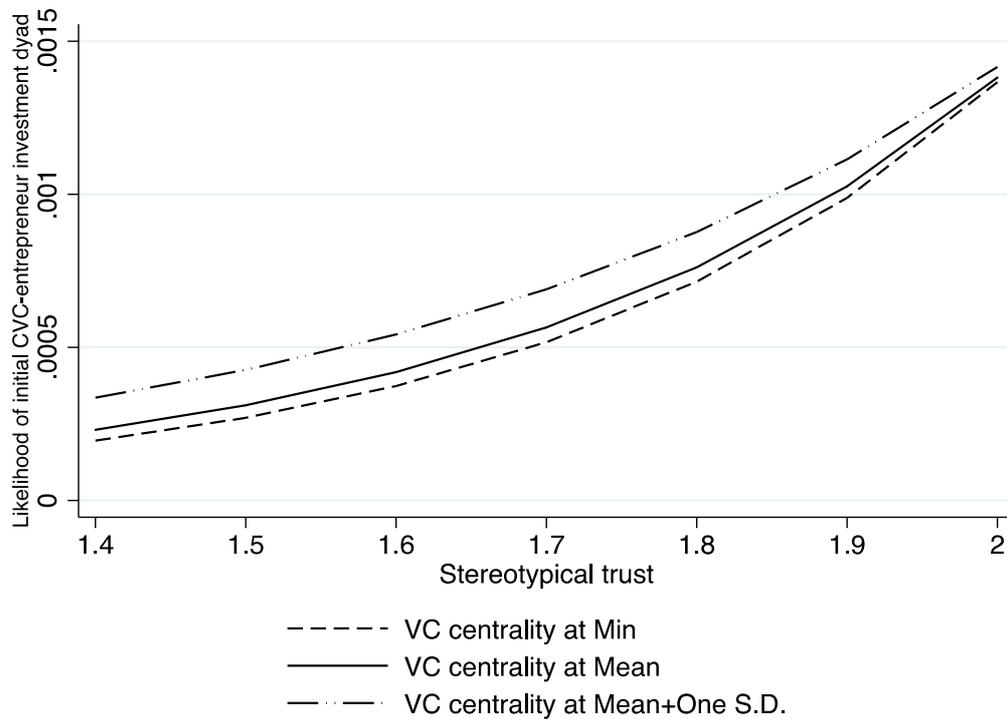

Figure 2 – Stereotypical trust and the likelihood of a CVC-new venture investment dyad: the moderating effect of VC centrality
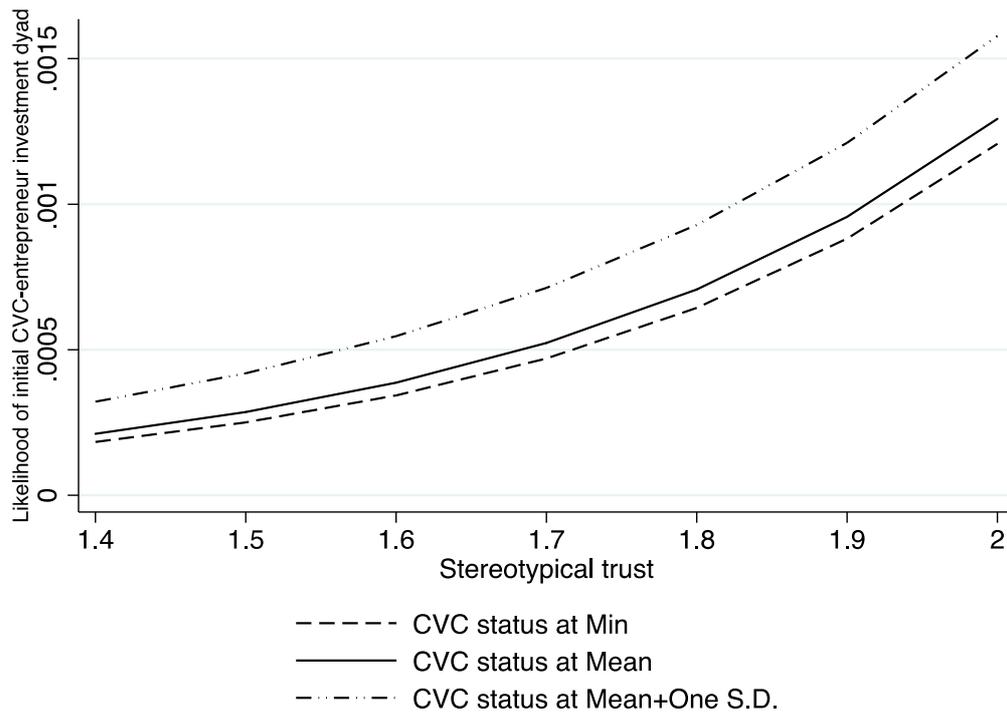
Figure 3 – Stereotypical trust and the likelihood of a CVC-new venture investment dyad: the moderating effect of CVC status