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Determinants of Cross-Border Venture Capital Investments in Emerging and Developed Economies: The Effects of Relational and Institutional Trust

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Abstract Frequent and open interaction between venture capitalists (VCs) and entrepreneurs is necessary for venture capital investments to occur. Increasingly, these investments are made across jurisdictions. The vast majority of these cross-border investments are carried out in a syndicate of two or more VCs, indicating the effects of intra-industry networks needing further analysis. Using China as a model, we provide a novel multidimensional framework to explain cross-border investments in innovative ventures across developed and emerging economies. By analyzing a unique international dataset, we examine worldwide venture capital investment flows from 2000–2012 and consider the effects of geographical, cultural, and institutional proximity as well as institutional and relational trust. We find trust to mitigate the negative effects of geographical and cultural distance, where institutional trust is more relevant for investments in emerging economies, and relational trust is more relevant for investments in developed economies.

Keywords Venture capital · Institutional trust · Relational trust · Corruption · China · Syndication · Emerging economies

JEL Classification G3 · K4 · D81

Introduction

Venture capitalists (VCs) are specialized financial intermediaries who combine their unique blend of technological competence and financial skills, to provide both financial and managerial support for entrepreneurs in innovative ventures. It has been established by extant research that VCs not only promote innovative activities (Kortum and Lerner 2000; Samila and Sorenson 2010, 2011), but they also provide additional value-added support to enable innovative products or services to be rapidly brought to market (Black and Gilson 1998; Bygrave and Timmons 1992). It is not surprising, therefore, that the creation of flourishing venture capital markets has become an integral goal of recent innovation-related public policies in many developed and emerging economies (Beck et al. 2008; Cumming 2006a; Kortum and Lerner 2000). Although some initiatives have reached their goals, many such policies have not been found to be successful (Cumming 2003, 2006b, 2007a, b, 2011). While research has determined varied reasons for such failures, we believe that one of the main reasons for the lack of success in encouraging venture capital investment is local bias. Local bias has long been considered inherent in financial intermediary activity, as financial intermediaries feel a strong need for spatial proximity and rely heavily on local expertise (Coval and Moskowitz 1999, 2001; French and Poterba 1991; Parwada 2008) to mitigate agency problems. Local bias is, thus, a

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significant hurdle to breach as markets seek to accelerate development by tapping foreign sources of knowledge and capital (Avnimelech et al. 2006). Local bias can be even more significant for venture capital, as investment in innovative activities involves considerable uncertainty and is characterized by asymmetric information at the outset and agency problems during the investment process. Frequent and open interaction between investor and investee within close proximity appears necessary for these investments to succeed (Cumming and Dai 2010; Engel and Keilbach 2007; Sapienza 1992; Sapienza et al. 1996).

A new, growing body of literature, however, suggests a paradigm shift toward a more globally distributed venture capital investment pattern (Baygan and Freudenberg 2000; Guler and Guillén 2010; Kendall and Aizenman 2012; Wright et al. 2005). This paradigm shift is not only of interest to governments seeking to further develop local venture capital markets by attracting both foreign funds and expertise, but researchers also have an interest in deciphering this changing paradigm (Bruton et al. 2004, 2005; Avnimelech et al. 2006; Groh et al. 2007, 2010), as this suggests well-recognized institutional challenges that seem to have been surmounted for cross-border investments—such as underdeveloped investor and property protection (Peng 2001), high cultural distance, diverging business ethics and practices (Ahlstrom and Bruton 2006; Dai and Nahata 2013), and the perception of corruption in certain jurisdictions (Johan and Naja 2010). One possible explanation catching the attention of researchers is network effects, specifically the growing tendency for foreign VCs to team up in a syndicate with domestic partners to take advantage of their local expertise and to ensure interaction (Lerner 1994; Mowery et al. 1996; Dai and Nahata 2013; Manigart et al. 2002, 2006; Nahata et al. 2013; Sorenson and Stuart 2008). In this paper, we analyze these network effects and their effect on local bias.

An example of a jurisdiction that has benefited from this paradigm shift is China. China's institutional environment encompasses the abovementioned weaknesses and has at times been called "peculiar" (Bruton and Ahlstrom 2003; Wang et al. 2013; Lu et al. 2012; Tan and Tan 2005). In addition, with regard to institutional trust, which we take to indicate overall trust in the institutional structure and the honest behavior of citizens in a particular country, China ranks particularly low. However, China has been able to not only build a venture capital market from scratch since 1984 (Xiao 2002) but also has been able to develop it to the success it possesses today. China's success at attracting both local and foreign venture capital has been previously attributed to network-based strategies, also known as a form of relational trust, or *guanxi*, utilized by market participants (Peng 2003; Pukthuanthong and Walker 2007; Su et al. 2007). In this paper, we posit that while institutional trust is not attached to a particular relationship, it serves to

ease the way in establishing one, as it mitigates the effects of lack of proximity in cross-border investments. As the relationship is established and relational trust is built, the perceived uncertainty of the investments gradually declines, while a mutual understanding develops, and both parties move toward a more symmetric information base. Thus, even in the absence of relational trust, we expect countries with high institutional trust to hold higher venture capital inflows and syndication activities, despite potential social and geographical distance. We refer to China as a model for this paper, as we seek to augment existing research in the pattern of international alliances and syndicates in the venture capital industry. We believe that for a more thorough understanding of the balance between institutional factors and network effects, our research must take into account numerous jurisdictions, both developed and emerging, for legal, lingual, political, and market capitalization and cultural differences to be appropriately analyzed. More importantly, few jurisdictions possess such pronounced institutional characteristics as China.

We begin by acknowledging that although geographical and cultural norms may differ across countries, one thing that remains unchanged is the secretive and high-risk nature of nascent, innovative start-up firms. To mitigate the adverse selection risk in start-up investment, frequent, persistent, and open exchange of both codified and tacit information (Polanyi 1966) is necessary between the creators of the innovation and their cross-border financiers (Gompers and Lerner 1999; Cumming 2006a). The frequency, openness, and quality of the social exchange among parties is naturally dependent upon proximity. For the purposes of this paper, we use several measures to analyze the effect of geographic, institutional, lingual, and cultural proximity, along with corruption levels and political instability.

Along this process of exchanging both codified and tacit information among market participants, institutional trust must be established; as the number of interactions increase, relational trust also increases. We recognize that institutional and relational trust differ in their influence, depending on the participant composition of the investments (foreign only vs. foreign and domestic VCs) and the institutional setup of the destination country (developed vs. emerging economy).

We find that the higher the geographical and cultural distance, the lower the likelihood of cross-border investment. High market capitalization and low corruption levels in the destination country encourage VCs to overcome local bias and consider an investment in that country. When focusing on investments in emerging economies, we also find a particularly strong negative effect on corruption. Venture capital flow does appear to move from high-growth countries to low-growth countries; therefore, it appears that VCs are willing to take on the higher risk of

investment in emerging economies. Our findings suggest that VCs mitigate the investment risk with social exchange among a syndicate comprising at least one local VC to overcome lack of proximity. Our findings also suggest that relational trust helps overcome high geographical, cultural, and institutional distance. We find, however, that institutional trust has a more positive impact on cross-border venture capital flows from developed to emerging economies. This may be because VCs may prefer to rely on their familiarity with established institutional factors in making investment decisions and do not necessarily view relational trust as a substitute for institutional trust. Sophisticated VCs with sectoral experience, for example, may believe they are sufficiently capable to assess the viability of an innovative firm. The VCs' sectoral experience along with the institutional experience they have gathered ex-ante allow such VCs to not be reliant on the information gathered from social exchange with less sophisticated local VCs ex-post, though such information may still mitigate investment risk. Another explanation for institutional trust having more of an impact on cross-border venture capital flow from developed to emerging markets is that VCs from the developed economies would prefer not to dilute their reputational capital by investing with less reputable VCs from emerging economies. (See a related study linking VC reputation in China with performance, Wang et al. 2013).

The remainder of the paper is structured as follows: In "Theory and Hypotheses" section, we provide a theoretical background, review seminal academic work, and develop a socio-economic framework of cross-border venture capital. Empirical tests are discussed in "Empirical Setting" section. "Results and Discussion" section concludes and derives implications for practitioners, policy makers, and scholars.

Theory and Hypotheses

Prior research has sought to explain the patterns of global venture capital allocation with reference to general macroeconomic conditions. Most of the research concludes that certain characteristics, such as high market capitalization (Black and Gilson 1998), growth rates (Romain and Van Pottelsberghe 2004a, b), and sophisticated institutions which ensure the protection of investors rights (Guler and Guillén 2005, 2010; La Porta et al. 1997, 1998, 2000), create favorable investment conditions that ultimately lead to higher cross-border venture capital. While such determinants that capture different aspects of a country's aggregated economic activity can somehow trigger cross-border venture capital flows, we believe they are somewhat limited in explanatory power. In particular, they fail to acknowledge the inherent features of innovation, which makes its finance distinctively challenging (Hall 2010; Hall and Lerner 2009). Innovation,

by definition, is the creation of somewhat qualitatively different, novel, and unproven products, processes, or business models. The financing of innovation is surrounded by uncertainty, stemming mainly from incomplete information and a limited ability to interpret incomplete information (Knight 1921). Such incomplete information leads to high adverse selection risks borne by the financier of innovation. Furthermore, the entrepreneurs or innovators usually have more complete information than the venture capital investors (Cumming 2006a). In the case of start-ups, this problem is further amplified as historical data enabling the projection of future performance are neither available for the applied technology nor the firm (Berger and Frame 2007; Berger and Udell 1998; Berger and Udell 2002; Freel 1999, 2000, 2007). Unlike other forms of traditional financing, such as bank or public market financing, the quality of both quantitative and qualitative information necessary to evaluate the financing of an innovative start-up firm is so poor that VCs have to resort to spatial proximity and local expertise or knowledge to gather the information required to mitigate their significant financial risk (Coval and Moskowitz 1999, 2001; French and Poterba 1991). This information gathering may be significantly more challenging in cross-border investments, especially between developed and emerging economies; therefore, local bias is inevitable.

Polanyi (1966) classifies human knowledge as consisting of codified (or explicit) and tacit elements, where codified elements are easily transmittable using a standardized formal and systematic language, such as mathematics, and tacit elements are context dependent and personal, hard to formalize and transmit over distance, necessitating face-to-face and interpersonal interaction (Arrow 1962; Von Hippel 1994). Information required to mitigate traditional financial risk and ascertain return optimization, such as balance sheets or performance records, is of a codified nature and readily available. We noted earlier that for venture start-ups, such information is rarely available. Even where such information is available and codified, with cross-border investments, the information may not necessarily be easily decipherable, not completely understood, as though in a different language or subject to an unfamiliar institutional context. In addition, tacit knowledge includes the personal characteristics of an entrepreneur or an understanding of novel product concepts; tacit knowledge is not readily available and gradually unfolds in a timely process of interaction between individuals. Hence, the very act of gathering tacit information requires the establishment of a relationship and continuous interaction between (co-) investors and entrepreneurs.

As a consequence, we suggest concepts usually used to explain the emergence and performance of interpersonal and organizational relationships to be of high explanatory

power when analyzing cross-border VC investments. In particular, we draw from proximity concepts (Boschma and Frenken 2010; Boschma 2005) and theories on institutional and relational trust.

We know that spatial proximity and local expertise or knowledge is used by VCs to identify the existence of innovative ventures and to gather the information required to mitigate their significant financial risk (Coval and Moskowitz 1999, 2001; French and Poterba 1991). We believe that geographical proximity, which indicates the physical distance between the VC and the innovative start-up firm, is necessary for frequent and open interaction between the VC and the entrepreneur (Cumming and Johan 2007). Open interaction facilitates the gathering of both codified and tacit information required by VCs to determine the existence of innovative ideas and the viability of an investment in an innovative venture. We know that geographic proximity is especially important in the pre-deal selection, due-diligence, as well as the post-deal monitoring and value-adding phase of a venture investment (Cumming and Dai 2010; Davila et al. 2003; Engel and Keilbach 2007; Jääskeläinen et al. 2006; Kanninen and Keuschnigg 2003, 2004; Mäkelä and Maula 2008; Sapienza 1992; Sapienza et al. 1996). This is mainly because the advice and monitoring provided to the start-up firm is made at board or management meetings at the firm office; therefore, geographic proximity allows VCs to easily travel to the firm office within the VC's constrained time limitations (Cumming and Johan 2006b, 2007). Note that a VC would have more than one investee firm in his portfolio; traveling between large geographic distances would therefore affect the frequency of interaction between the entrepreneur and the VC.

In addition to geographic proximity, institutional similarities and differences in legal systems are also likely to influence cross-border VC investment activity. Venture capitalists do their best to mitigate the agency costs of venture investment (Avnimelech et al. 2006; Fiet 1995a, b; Shepherd and Zacharakis 2001) with the use of effective contracts and governance structures (Cumming and Johan 2013). The differences in legal systems increase information asymmetries, the cost (legal and contractual), and the risk of investment. Seminal work by La Porta et al. (1998, 2000) has shown that law quality can significantly affect the costs and benefits associated with monitoring the entrepreneur. Briefly stated, more efficient legal systems lower the costs associated with monitoring the entrepreneur and, thereby, increase the scope for the VC to maximize private benefits or profits. More dissimilar and inefficient legal systems are known to impede the ability of a VC to finance firms and, thus, hamper the rate of investment. In addition to legality differences, other institutional factors—including levels of corruption and political instability—

will also affect investment (Johan et al. 2013; Johan and Najar 2010; Davis and Ruhe 2003). Furthermore, sharing a common language may be a necessary precondition for knowledge transfer. We take into consideration lingual distance, as we believe that codified elements of information are worthless if indecipherable due to lingual distance.

Cultural dimension is also of high importance when explaining how business is accomplished in general (Hofstede and Bond 1984). Cultural distance, another proximity measure, can be associated with diverging values, business ethics, and codes of conduct. As recent studies show, countries with higher cultural distance show higher mistrust (Guiso et al. 2008), and discourage risk sharing (Giannetti and Yafeh 2012) among potential investors. Since the selection, evaluation, monitoring, and management support of VC investments necessarily requires frequent and open interactions between involved participants, high cultural distance can be expected to represent a major obstacle for cross-border investments. Tacit elements of information gathering are context dependent, and cultural distance may make this significantly more difficult among parties.

To overcome the limitations of proximity, VCs seek to cross borders when investing in innovative ventures do so within syndicates. Some choose to syndicate with local VCs, as cross-border syndicates between domestic and foreign investors are said to reduce transaction costs (Tykvová and Schertler 2008) and bridge high cultural and institutional distance (Dai and Nahata 2013; Tykvová and Schertler 2010).

We, therefore, hypothesize as follows:

Hypothesis 1

1. Geographical, cultural, and institutional distance negatively affects venture capital investment activity between countries.
2. The negative effects of geographical, cultural, and institutional distance are less pronounced in cross-border investments syndicated with a domestic VC.

We noted in an earlier section that VCs do their best to mitigate the agency costs of venture investment with the use of effective contracts and governance structures to protect themselves against opportunistic behavior (Fiet 1995a, b; Shepherd and Zacharakis 2001; Avnimelech et al. 2006; Cumming and Johan 2013). Such risks, however, can never be completely eliminated (Farmer and Winter 1986; Sahlman 1990; Bergemann and Hege 1998; Cumming and Johan 2013). It is especially difficult to mitigate such agency costs with the use of contracts and governance structures in view of less efficient laws and corporate structures across different borders (Cumming and Johan 2006a; La Porta et al. 1997, 1998, 2000). In situations where residual uncertainty

stemming from incomplete contracts and asymmetric information cannot be eliminated through contracts and protection through formal institutions, trust among parties is imperative in facilitating investment activities, which is particularly true when it comes to investment in innovation (Nooteboom 2006). For the purposes of this paper, we distinguish between institutional and relational trust (Rousseau et al. 1998). Institutional trust is present *ex-ante* to the interaction and refers to the trust in the institutional environment, which includes institutional factors related to the legal framework and its enforceability as well as soft factors, such as a society's attitude to behave fairly and honestly. In contrast, relational trust *ex-post* unfolds gradually through repeated interactions over time (McAllister 1995; Blau 1964).

We argue that institutional and relational trust are both very important in cross-border venture capital deals, but they differ in their influence, depending on the participant composition (foreign only vs. foreign and domestic VCs) of the investments and the institutional setup of the destination country (developed vs. emerging economy). Our arguments are based on prior research, which finds that in high-trust societies, parties must spend fewer resources to protect themselves against opportunistic behavior. Parties making investment and production decisions more focused on the long run have higher incentives and return on the accumulation of human capital (Knack and Keefer 1997) and are more likely to share knowledge (Dovey 2009) and participate in open innovation projects (Nooteboom 2006). Trust between countries also positively influences their economic exchange in terms of stock market investments (Guiso et al. 2008), foreign direct investments, and bilateral trade (Guiso et al. 2009).

Recently Duffner et al. (2009) and Bottazzi et al. (2011) also provide empirical evidence showing a strong statistical and economic significance of trust on venture capital investments, reporting generalized and personalized trust *ex-ante* to reduce doubts regarding an investment decision and *ex-post* to provide a good foundation for efficient and effective communication and interaction between them. For stand-alone foreign investments, we assume that the VC and the entrepreneur maintain no relationship prior to the investment; thus, they have no way to build up endogenous forms of trust. Here, the role of institutional trust *ex-ante* is of significant importance, providing the foundation for building up a critical mass of initial trust to enter a relationship involving proximity. Once the relationship is initiated, the parties build up relational trust, resulting from frequent and open information sharing. We note, however, that relational trust *ex-post* unfolds gradually through repeated interactions over time, and the extent of proximity will affect the absorption rate of social exchange; therefore, for investments with greater distance between developed and emerging economies, for example, institutional trust would play a greater role at the outset.

The relationship between the entrepreneur and a VC would differ from one VC to another. The VC community is small, and reputation is key (Hsu 2004; Nahata 2008; Nahata et al. 2013). Information regarding unprofessional or dishonest behavior diffuses quickly and influences a VC's future deal flow opportunity substantially in quantity and quality. As a consequence, VCs theoretically have an incentive to consistently behave honestly and fairly with their investees and syndicates in order to maintain or build up their valuable reputation. However, for cross-border relationships, proximity may temper the dissemination of reputational quality. Also, the quality of VCs from emerging economies may not be up to par in relation to VCs from more developed jurisdictions (Nahata et al. 2013). However, VCs working as a syndicate or a network are able to build up, over time, persistent long-term relationships. As a result, relational trust eventually emerges between former syndication partners, lowering the uncertainty when joining further investment invitations with the same partners. Still, we expect this effect due to differences in reputation effects and experience/quality to be of lower magnitude for foreign-domestic syndicates in emerging economies. Thus, we hypothesize as follows:

Hypothesis 2

1. Institutional and relational trust positively affects bilateral venture capital investment activity and diminishes the negative effects of geographical, social, and institutional distance.
2. The positive effects of institutional trust appear stronger for investments in emerging compared with developed economies.
3. The positive effects of institutional trust appear weaker for cross-border investments syndicated with domestic VCs.
4. The positive effects of relational trust appear weaker for investments in emerging compared with developed economies.

Empirical Setting

Data and Variables

In the following section, we briefly describe our data sources, empirical model, employed variables, and their construction. For our empirical analyses, we draw from Bureau van Dijk's Zephyr databases on global equity investments.¹ We include all venture capital identified deals between 1998 and 2012,

¹ For a detailed description of the Zephyr database and its positive value for cross-border venture capital research, see Schertler and Tykova (2009, 2010); Tykova and Schertler (2010).

where the first two years are only used to create lagged variables of investment activities. To minimize noise caused by one-off investments, we exclude investments of VCs that carried out only five or less investments during the final observation period, 2000–2012. We aggregate these deals on the level of the dyad between source and destination country. In deals with investors from multiple source countries, the deal is accounted once for every involved country dyad, independent of the number of investors. For example, if two French VCs and one German VC invest in syndicate in an Irish portfolio firm, the country dyads FR-IE and DE-IE both get one additional count for this deal. Our final dataset contains 30,650 deals, of which 11,665 cross-national borders; 1555 VCs in 8,665 unique portfolio companies located in 37 countries—22 developed and 15 emerging economies—carry out these cross-border deals. Table 1 sets out a matrix of venture capital investments between country pairs, where we show the activity between the top quantile of countries in terms of VC activity. Table 2 provides further information on domestic venture capital investments, cross-border inflows, and outflows per country.

Dependent Variables

In most related studies, venture capital flows between country dyads and is measured by either counting the number of investments or their monetary value, which is strongly influenced by the size of the countries under study. All else being equal, this amount is obviously expected to be higher between large economies, and vice versa. To take the gravity effect of economic size into account (e.g., Feenstra et al. 2005; Krugman 1980; Pöyhönen 1963; Tinbergen 1962), we construct our dependent variable as a measure of venture capital flow propensity.

$$VCprop_{i \rightarrow j}^t = \frac{VCFlow_{i \rightarrow j}^t / VCinvest_i^t}{GDP_i^t / GDP_j^t}. \quad (1)$$

The numerator represents the share of dyadic investments from the source country for all the venture capital investments in the destination country; the denominator represents the ratio between the source and destination country's GDP.

For the sake of comparison and robustness, we also used the number of annual deal counts ($VCinv_{i \rightarrow j}^t$) as a dependent variable for an alternative model.

Independent Variables

Geographical Distance

We follow Mayer and Zignago (2011) by measuring *geographical distance* as the population density adjusted for

distance in kilometers between a country dyad (CEPII Database), where we generally expect a negative effect on venture capital investment activity. However, with increasing geographical distance, investors are able to substitute means of transportation (e.g., car, train, airplane) and communication, leading to a non-linear increase of investment obstacles in geographical space (Sorenson and Stuart 2001). To account for this, we use the logarithmic transformation of geographical distance.

Cultural Distance

To measure *cultural distance*, we calculate the distance between countries over Hofstede's et al. (2010) four cultural dimensions (power distance, individualism, masculinity, uncertainty avoidance), following the approach of Kogut and Singh (1988), as in Eq. 2

$$dist_{cult_{ij}} = \frac{\sum_{u=1}^4 \frac{I_i^u - I_j^u}{\text{var}(I^u)}}{4}. \quad (2)$$

Lingual Distance

In addition, we include a dummy variable provided by Melitz and Toubal (2012) indicating that the countries share a common language (*same lang_{ij}*) spoken by at least 10 % of the population in both countries. The lack of a common language might very well represent an obstacle in both the communication of both codified and tacit information between VCs and investee firms and between entrepreneurs and other officials in the destination country.

Institutional Distance and Quality of Institutions

Venture capitalists investing in countries with different institutional settings are confronted with unfamiliar explicit and implicit "rules of the game" (North 1990), codes of conduct, and general business practices and ethics. Institutional distance is, thus, commonly regarded as a major obstacle for cross-border venture capital investments (Guler and Guillén 2010; Megginson 2004). To analyze the effect of *institutional distance*, we employ a set of different measures.

First, a dummy variable is implemented indicating the country's legal system, based on different law traditions (*same legal_{i,j}*), as classified by La Porta et al. (1998). Legal differences are associated with increased *ex-ante* information costs and decreased *ex-post* capabilities of adding value and are, thus, expected to negatively affect investment activities between country dyads. The level of corruption in the destination country represents another institutional facet likely to affect cross-border venture capital flows, particularly in developing economies which

Table 1 Country dyad investment matrix

$i \rightarrow j$	AT	AU	BE	BG	BR	CA	CH	CN	DE	DK	ES	FI	FR	GB	HK	IE	IL	IN	IT	JP	KR	NL	NO	PL	RU	SE	SG	US	\sum_j	
AT	0	0	0	0	0	0	2	0	6	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
AU	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	62
BE	2	0	0	0	0	15	0	21	2	1	1	42	45	0	11	9	0	1	0	0	0	0	0	0	0	1	5	92	278	
BG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BR	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6
CA	0	0	0	0	0	0	0	4	0	0	1	6	16	0	5	2	0	0	0	0	0	0	5	0	0	2	1	530	572	
CH	10	4	8	0	0	13	0	6	126	13	4	3	20	57	0	13	6	2	7	0	1	11	4	0	0	7	5	378	698	
CN	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	2	0	0	0	0	0	0	6	40	52
DE	43	3	8	0	3	22	56	5	13	5	5	50	100	0	9	40	2	7	0	1	25	2	14	7	7	2	410	839	216	
DK	2	0	0	0	0	4	11	0	16	0	12	7	25	1	1	0	0	0	0	0	0	3	1	0	0	34	0	99	216	
ES	0	0	0	0	7	2	3	0	4	0	0	4	12	0	2	1	1	0	0	0	0	2	0	0	0	2	0	24	64	75
FI	2	0	0	0	0	4	1	0	1	8	1	0	3	0	0	0	0	1	0	0	1	1	1	1	0	26	0	25	75	
FR	7	0	40	0	0	18	62	5	67	12	9	5	102	0	10	9	3	2	1	0	23	2	0	2	12	1	219	611	1838	
GB	19	3	22	1	2	18	41	9	200	28	56	44	192	1	66	38	4	31	3	0	37	13	1	4	70	8	927	1838	105	
HK	0	0	0	0	0	4	0	28	1	0	0	0	15	0	0	4	9	0	0	0	0	0	0	0	0	0	2	42	105	
IE	2	0	0	0	0	1	1	1	0	0	1	0	1	43	0	0	0	0	0	0	0	0	0	0	0	0	0	26	76	76
IL	0	0	0	0	1	5	0	6	0	0	0	0	6	38	0	3	1	0	0	0	2	0	0	0	0	0	0	527	589	23
IN	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	23	80
IT	2	0	0	0	0	0	0	0	3	0	6	2	14	27	0	0	10	0	0	0	0	0	0	0	0	0	1	15	80	338
JP	0	2	2	0	0	2	2	27	2	1	0	0	14	30	1	1	5	1	1	3	1	0	0	0	0	6	6	231	338	13
KR	0	0	0	0	0	3	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8	13	478
NL	10	0	38	80	0	8	16	0	58	15	5	7	30	78	1	6	8	0	5	0	0	3	0	0	8	0	102	478	90	
NO	0	0	0	0	0	0	12	0	2	6	0	0	1	20	0	0	0	0	0	0	0	0	0	0	0	22	0	27	90	1
PL	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
RU	0	0	0	0	0	0	0	0	9	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	35	47	217
SE	0	1	0	0	1	1	8	2	7	25	2	26	10	16	0	0	2	1	1	0	0	0	28	0	1	0	85	217	196	
SG	0	3	1	0	0	3	3	23	3	5	0	0	10	14	0	5	2	7	0	12	0	1	0	0	1	103	196	2915	10,488	
US	13	30	22	1	48	485	63	347	144	25	28	35	127	625	21	69	351	236	13	28	17	65	9	8	17	64	24	2915	10,488	
\sum_j	112	46	141	82	62	594	296	460	675	153	118	143	536	1274	28	201	487	267	69	44	24	206	63	24	31	262	62	4028	10,488	

This table reports the aggregated amount of venture capital deals during the observation period, from 2000 to 2013, between country pairs. It must be interpreted as follows: The destination country in the column receives a venture capital deal inflow from the source country j in the row; respectively, j has an outflow to i . For the sake of brevity, only the top quantile of countries in terms of VC activity are reported

Table 2 VC investments by country

	AT	BE	CH	DE	DK	ES	FI	FR	GB	GR	IE	IT	JP	NL	NO	PT	SE	US
Domestic investments																		
Volume	400	669	748	6,014	799	1420	697	0	11,823	15	582	690	352	1205	292	43	1498	126,961
Number	80	155	136	1145	166	309.0	167	0	2433	4	201	86	151	224	57	12	362	11,794
Gross cross-border inflow (from all sample countries)																		
Volume	105	363	647	1444	344	232	241	0	3,593	0	356	226	18	625	166	16	556	10,020
Number	26	98	175	427	105	47	81	0	763	0	137	34	14	117	33	8	182	2402
Gross cross-border outflow (to all sample countries)																		
Volume	22	576	1905	2198	465	104	170	1,270	4,878	0	151	143	1616	870	229	12	538	3801
Number	9	185	487	552	138	26	62	367	1152	0	51	54	367	286	91	6	163	653

This table reports the aggregated venture capital investments, in- and outflows in the period between 2000 and 2013 on the country level, measured in million EURO and, alternatively, in the number of investments

tend to have less-developed, formal institutional structures (Peng 2000). We, therefore, include the Corruption Perception Index (cpi_i^t) provided by Transparency International in our set of independent variables. The CPI reflects the view of a panel of country experts on how corrupt the public sector of the corresponding country is perceived. The CPI is considered one of the most reliable measures of corruption around the world (Wilhelm 2002). Generally, we expect corruption to negatively affect the amount of cross-border venture capital inflows. However, in countries with rigid and ineffective formal institutions, market-driven corruption can also be a means to grease the wheel and get business done (Huntington and Fukuyama, 2006; Nielsen 2003; Leff 1964; Levy 2007). Learning to deal with corruption might turn out to be a key capability in such settings. Therefore, we also include the differential between the destination and source country's CPI (Δcpi_{j-i}^t) in our empirical tests. To account for the effects of political instability and the associated increase of uncertainty in countries with highly unstable political regimes, we also employ the measure provided by Kaufmann et al. (2010), which captures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means ($inst\ stab_j^t$).

Institutional Trust

Institutional trust is the perception that other people can generally be considered as trustworthy. Institutional trust represents a commonly used measurement for social capital and relational embeddedness, and it is said to strongly impact economic activity in (e.g., Dovey 2009; Guiso et al. 2008; Knack and Keefer 1997), as well as between, countries (Guiso et al. 2009), particularly in transactions characterized by high uncertainty (Nooteboom 2006). To analyze the impact of this institutional facet on cross-border venture capital flows, we employ a common measure

for institutional trust ($trust_j$) in economic analysis (e.g., Beugelsdijk 2006; Knack and Keefer 1997) provided by the Survey (2009).² We expect high-trust destination countries to receive a higher share of cross-border venture capital investments. Comparing the WWS in-country measure with the measure of bilateral trust provided by the Eurobarometer (2011)³ reveals a high correlation between a country's internal generalized trust and the trust received by other countries. Therefore, we also interpret a country's generalized trust as an approximation for the level of trust received by the source country. Trust in the society as a whole is also cause and consequence of trust in the quality of political and economic institutions. Hence, it is not surprising that the WWS measure of generalized trust, in our sample as well as other studies, strongly correlates with measures of institutional quality, such as indices for political stability, property right protection, freedom of press and speech, and quality of the legal system.

Relational Trust

In order to analyze the possible effect on syndication that domestic venture capitalists might play in bridging geographical, institutional, and cultural distance (Dai and Nahata 2013; Tykvová and Schertler 2010), harnessing synergies of complementary resource bases (Chemmanur et al. 2011), and providing credible signals on the portfolio companies' quality (Mäkelä and Maula 2008), we also include a variable ($VC\ synd_{i \rightarrow j}^t$) representing the share of

² Since the different waves of the survey do not always cover all countries, in some cases, survey results were used from older waves between 1995 and 2000. The correlation coefficient across the different waves always sits above 90 %, which indicates that the phenomenon of trust is somewhat persistent over time.

³ Unfortunately, this measure is only available for a subset of European countries and, therefore, could not be used against the background of our analysis.

investments carried out in syndication with domestic investors to all investments of the source i in the destination country j . While cross-border investments of foreign VCs directly into domestic investee companies may not necessarily necessitate a former relationship between them, for syndicated investments between domestic and foreign VCs, it is very well likely that not only will the participants already know each other, either through prior joint investments, shared contacts, or reputation, but that there sufficient, open, and persistent lines of communication exist. Thus, for our analysis, we interpret ($VC\ synd_{i \rightarrow j}^t$) as a first approximation of potential *relational trust* between country dyads.

Trade Flow

To account for the intensity of economic relationships between countries, we use a standard measure from the trade literature: The product of last year's export from country i to j and j to i , divided by the products of their GDP, as illustrated in Eq. 4:

$$trade_{i \rightarrow j}^{t-1} = \frac{export_{i \rightarrow j}^{t-1} * export_{j \rightarrow i}^{t-1}}{gdp_i^t * gdp_j^{t-1}}. \quad (4)$$

Control Variables

Furthermore, we control for the following country and country dyad-specific characteristics. The growth-rate of the destination country's GDP ($growth_j^{t-1}$) reflects the tendency to invest in countries with high economic growth and the differential between the growth of destination and source country. A vivid stock market represents a profitable exit option for venture capital investment and is said to have a positive effect on venture capital activity (Black and Gilson 1998; Gompers et al. 2008), which we take into account by incorporating control variables for the destination country's ratio of market capitalization ($capitalisation_j^{t-1}$) and stocks traded capitalization ($stocks_j^{t-1}$) to its GDP. Additional to the characteristics of the destination country, we also include directional controls for the differences between the destination and source country ($\Delta growth_j^{t-1}$, $\Delta capitalisation_j^{t-1}$, $\Delta stocks_j^{t-1}$). For the sake of clarity, and to avoid very high differences in the order of magnitude of the coefficients, we have rescaled all control variables in the country dyad by dividing their maximum, resulting in a range [0,1]. (Consider Table 6).

Foreign VC Characteristics

For an additional model analyzing the constellation of cross-border venture capital deals, we also include a set of variables indicating the highest prior investment experience of the

foreign VCs in the same sector ($exp\ sector_{max(k)}^t$), the destination country ($exp\ country_{max(k)}^t$), and prior investments in the current portfolio company itself ($exp\ target_{max(k)}^t$).

Descriptive Statistics

Table 3 provides the definitions of the main variables used in our analyses; Tables 4 and 5 provide descriptive statistics; and Tables 6 and 7 show a correlation matrix for the set of variables on country dyad level and on deal level, respectively.

The correlation matrix of our macro-level analysis provided in Table 6 shows that, generally, venture capital, in absolute ($VC\ count_{i \rightarrow j}^t$) as well as in relative ($VC\ prop_{i \rightarrow j}^t$) terms, tends to flow toward destination countries with low cultural and geographical distance and low corruption and high trust, as one might expect. These variables are also associated with a higher share of syndicated investments between source and destination country ($VC\ synd_{i \rightarrow j}^t$), contrary to the idea that VCs use syndication with domestic partners particularly as a means of dealing with high distance and local uncertainty. Interestingly, there is no strong correlation observable between the institutional, geographical, and technological distance per se. The remaining correlations between variables are as expected, overall, and in a reasonable scale. The only exceptions are the high correlations between $trust_j^t$, $inst.\ stab_j^t$ and cpi_j^t , and between $capitalisation_j^t$ and $stocks_j^t$. Since this set of variables measure different facets of the same phenomenon, to some extent, high correlation can be expected.⁴

Table 7 provides the correlation matrix for the set of regressions at the deal level. Worth mentioning is that, in contrast to the macro-level models, the variables for institutional, cultural, and legal distance strongly correlate. Again, by sequentially adding these variables in different combinations in the model-building phase, we ensure the stability of our models and the robustness of the results.

Model Specification

Even though the global venture capital investment network has sharply increased during the last decade, compared with international trade flows, which are still rather sparse, only around a quarter of all country dyads show cross-border venture capital investment activity during the

⁴ Since the models provide stable results, and colinearity diagnostic statistics such as the variance inflation factor indicate no worrisome instability, we decided to use these variables jointly. However, we first ran a set of unreported regressions, in which we sequentially add these variables in different combinations and observe changes in coefficient values and variance.

Table 3 Variable description

Variable	Description	Source
Macro models		
Dependent variable		
$VC_{i \rightarrow j}^i$	Number of venture capital deals in destination country j with participating venture capitalists from source country i	Zephyr
$VC\ prop_{i \rightarrow j}^i$	Venture capital propensity between source country i and destination country j	Zephyr
Distance	Natural logarithm of the distance in kilometers between the source country j and the destination country i , adjusted to population density	CEPII
$dist\ geo_{i,j}$	Cultural distance between source country j , as in equation \ref{eq:cd}	Hofstede et al. (2010)
$dist\ cult_{i,j}$	Dummy, indicating a shared language spoken by at least ten percent of the population in source j and the destination country i	CEPII
$same\ lang_{i,j}$		
Trust and relationship		
$trust_i$	Percentage of citizens of the destination country i who replied to the question: "Generally speaking, would you say that most people can be trusted?" with "Yes"	World Value Survey
$VC\ synd_{i \rightarrow j}^i$	Share of deals carried out in syndication between foreign venture capitalists from source country i with domestic ones in destination country j to all investments from source country i in destination country j	Zephyr
$trade_{i \rightarrow j}^{-1}$	Trade flow relative to GDP between Source country i and destination country j	OECD STAN database
Institutions		
$same\ legal_{i,j}$	Dummy variable, indicating the same origin of the legal system in source i and destination country j (categorized in French, German, English, and Scandinavian)	La Porta et al. (1998)
cpi_j^i	Corruption Perception Index of destination country j , adjusted to 0–1 scale, where high values indicate low levels of corruption	Transparency International
$inst.\ stab_j^i$	Institutional stability of destination country j , standardized on -2.5 to 2.5 scale, where high values indicate high instability	Kaufmann et al. (2010)
Controls		
gdp_j^{-1}	GDP of destination country j , constant 2005 USD	Worldbank
$gdp\ cap_j^{-1}$	GDP per capita destination country j , constant 2005 USD	Worldbank
$gdp\ growth_j^{-1}$	GDP growth of destination country j in percentage	Worldbank
$capitalization_j^{-1}$	Ratio of market capitalization of listed companies to GDP in destination country j	Worldbank
$stocks_j^{-1}$	Ratio of stocks traded to GDP in destination country j	Worldbank
Micro models		
Dependent variable		
$VC\ host$	Dummy variable, indicating whether or not the cross-border VC deal also includes a domestic VC	Zephyr

Table 3 continued

Variable	Description	Source
Dyad		
$dist_{geo,max(i,j)}$	Mean of geographical distance between destination country and country of residence of the foreign VCs	CEPII
$dist_{cult,max(i,j)}$	Mean of cultural distance between destination country and country of residence of the foreign VCs	Hofstede et al. (2010)
$legal_{max(i,j)}$	Dummy variable, indicating whether or not at least one of the foreign VCs comes from a country with the same legal tradition	La Porta et al. (1998)
$lang_{max(i,j)}$	Dummy variable, indicating whether or not at least one of the foreign VCs comes from a country with the same language	CEPII
Acquiring foreign VCs		
$exp_{sector,max(k)}$	Maximum of the participating foreign VCs experience in the PC sector	Zephyr
$exp_{country,max(k)}$	Maximum of the participating foreign VCs experience in the DC	Zephyr
$exp_{target,max(k)}$	Maximum of the participating foreign VCs experience with the same PC	Zephyr

This table provides definitions of the main variables in the dataset and the data sources

Table 4 Descriptive statistics, country dyad level

Variable	N	Mean	SD	Min	Max
Dependent variable					
$VC_{i \rightarrow j}^t$	70,571	0.151	1.943	0.000	104.000
$VC\ prop_{i \rightarrow j}^t$	70,571	0.006	0.158	0.000	29.920
Distance					
$dist_{geo,i,j}$	68,597	8.586	0.918	3.835	9.886
$dist_{cult,i,j}$	36,414	0.060	0.023	0.006	0.150
$same_{legal,i,j}$	70,571	0.225	0.418	0.000	1.000
$same_{lang,i,j}$	68,597	0.146	0.353	0.000	1.000
Trust and relationship					
$trust_i$	63,711	0.063	0.314	-0.427	1.000
$VC\ synd_{i \rightarrow j}^t$	70,571	0.015	0.113	0.000	1.000
$trade_{i \rightarrow j}^t$	31,819	0.002	0.023	0.000	1.000
Institutions					
cp_i^t	66,226	0.559	0.227	0.150	1.000
$inst.\ stab_j^t$	68,605	0.260	0.921	-2.812	1.668
Controls					
$gdp_j^{t-1} *$	68,586	0.045	0.118	0.000	1.000
$gdp\ cap_j^{t-1} *$	68,587	0.178	0.180	0.002	1.000
$gdp\ growth_j^{t-1} *$	68,516	0.893	0.103	0.000	1.000
$capitalization_j^{t-1} *$	66,570	0.110	0.115	0.000	1.000
$stocks_j^{t-1} *$	66,640	0.062	0.102	0.000	1.000

This table presents descriptive statistics of our main variables. Subscript i indicates the source country, j , the destination country; and k , the VC firm

* Indicates that the variable is normalized (divided by maximum, hence [0,1])

observation period. When explanations for these country dyads without investment activity diverge from the model estimating their absolute or relative amount of investment activity, issues of structural zeroes and endogenous selection arise. To deal with potential biases, we apply two-stage estimation techniques in both cases. For the set of GLS regressions, we first fit a probit model, estimating the probability that a country dyad accounts for any investment activity from 1998 until 2012. Following Heckman (1979), we calculate the inverse Mills ratio, and insert it into the GLS model.⁵ Since many of our independent variables are time-invariant and our dependent variable construction makes it unlikely to face omitted variable problems (since it already accounts for differences in domestic VC and general economic activity), we deploy a random effect model. Standard procedures such as the Hausman test confirm this choice.

In another model, we are interested in contrasting entry-mode decisions of VCs in foreign-developed and emerging

⁵ The results remain unreported yet are available on request.

Table 5 Descriptive statistics deal level

Variable	<i>N</i>	Mean	SD	Min	Max
Dependent variable					
<i>deal host</i>	7349	0.599	0.490	0.000	1.000
Destination country					
<i>gdp_j^t</i>	7346	0.438	0.400	0.000	1.000
<i>gdp growth_j^{t-1}</i>	7346	2.491	2.757	-14.072	14.781
<i>capitalization_j^{t-1}</i>	7344	107.068	46.252	-19.815	549.423
<i>cpi_j^t</i>	7340	0.725	0.146	0.17	1.000
<i>trust_j^t</i>	7331	0.885	0.821	-1.478	3.459
Dyad					
<i>dist geo_{mean(i,j)}</i>	7324	8.158	1.144	5.087	9.833
<i>dist cult_{mean(i,j)}</i>	7251	0.040	0.024	0.006	0.130
<i>legal_{max(i,j)}</i>	7325	0.541	0.498	0.000	1.000
<i>lang_{max(i,j)}</i>	7324	0.540	0.498	0.000	1.000
Acquiring foreign VCs					
<i>exp sector_{max(k)}^t</i>	7349	21.607	38.652	1.000	270.000
<i>exp country_{max(k)}^t</i>	7349	9.106	14.435	1.000	111.000
<i>exp target_{max(k)}^t</i>	7349	1.262	0.545	1.000	5.000

This table presents descriptive statistics of our main variables. Subscript *i* indicates the source country, *j* the destination country, and *k* the VC firm

* Indicates that the variable is normalized (divided by maximum, hence [0,1])

economies. In particular, we are interested in determining which conditions local investors have included in the otherwise foreign investment syndicate. Therefore, with single cross-border venture capital deals as units of observation, we run a simple logit model on the dependent variable, which—if the deal includes not only the foreign VC but also at least one investor with residence in the same country as the investee firm—takes the value of one. To contrast investments in developed economies with the ones in emerging economies, we additionally run this model using only the corresponding sub-sample. To avoid sampling issues, we calculate the standard errors with the bootstrapping method.

Results and Discussion

Table 8 reports the results of this set of GLS random effect regressions again at the country dyad level where we are aim to contrast the effects of distance and trust on VC investment propensity in deals only consisting of foreign investors vis-à-vis deals also including a domestic investor located in the destination country. We therefore in models 1 and 2 only include foreign-only cross-border investments when constructing our dependent variable ($VC\ inv_{i \rightarrow j}^t$),

whereas in models 3 and 4, we only include foreign-domestic syndicates.

At first glance, the results lend support to Hypothesis 1.1 and 1.2 indicating that VC investment activity is negatively affected by geographical and cultural distance, where the results are less pronounced in the sub-sample, including investments only including a domestic syndication partner. Both the magnitude and significance are lower in this sub-sample. To allow for path dependencies in the VC investment pattern, we control for the lagged dependent variable ($VC\ prop_{i \rightarrow j}^{t-1}$), which is significant in all settings. $trade_{i \rightarrow j}^{t-1}$ shows no statistical significance in all settings.

In Models 2 and 4, we introduce the measure for institutional trust in the destination country. As expected by Hypothesis 2.1, institutional trust positively impacts cross-border VC inflows. However, consistent with Hypothesis 2.3, institutional trust loses its significance when only looking for deals syndicated domestic VCs.⁶

As discussed earlier, we expect the rationales of cross-border venture capital investments to substantially differ when targeting an emerging destination country. Therefore, the next set of regressions, reported in Table 9, contrasts dyadic VC flows with developed (Models 1–4) or emerging destination countries (Models 5–8). The first striking insight is that both samples differ substantially in terms of coefficient magnitude, direction, significance, and overall model fit. The results for the sub-sample of developed destination countries show properties similar to the ones reported in Table 8. Again, with a significant $VC\ prop_{i \rightarrow j}^{t-1}$, investment activities show path dependencies, and geographical as well as cultural distance has a negative impact on cross-border VC investment activities, lending support to Hypothesis 1.1. A negative and significant $growth_{i \rightarrow j}^{t-1}$ indicates venture capital to flow from countries with higher growth to those with lower growth, which on first glance appears counter-intuitive. In this sub-sample, the negative effects of corruption on VC activity are particularly strong. When we introduce our measure for relational trust ($VC\ synd_{i \rightarrow j}^t$) in Model 2, representing the share of foreign-domestic syndications in the whole cross-border investment activity, we observe a positive and significant effect. While adding this variable leaves most other coefficients and their corresponding p-values unchanged, it draws a substantial part of the significance of geographical and

⁶ We additionally ran an unreported (but available on request) model on the whole sample (foreign-only as well as foreign-domestic investments), where we introduced an interaction term between $trust_j$ and $VC\ synd_{i \rightarrow j}^t$, which turns out to be negative and significant on a 5 % level. We interpret this result as further evidence for the suggested mitigating effect of teaming up with a local VC on institutional trust.

Table 6 Correlation matrix country dyad level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) $VC\ count_{i \rightarrow j}^t$	1.0000							
(2) $VC\ prop_{i \rightarrow j}^t$	0.2412*	1.0000						
(3) $dist\ cult_{i,j}$	-0.0878*	-0.0503*	1.0000					
(4) $dist\ geo_{i,j}$	-0.0036	-0.0384*	0.1871*	1.0000				
(5) $dist\ tech_{i,j}$	-0.0328*	0.0094	0.0493*	0.0374*	1.0000			
(6) $trade_{i,j}^t$	0.0283*	0.0453*	-0.0913*	-0.1258*	0.0049	1.0000		
(7) $same\ legal_{i,j}$	0.0612*	0.0417*	-0.2471*	-0.0806*	0.0064	0.0418*	1.0000	
(8) $same\ lang_{i,j}$	0.1058*	0.0485*	-0.1593*	0.015	-0.0018	0.1569*	0.2385*	1.0000
(9) $VC\ synd_{i \rightarrow j}^t$	0.2059*	0.1641*	-0.1005*	-0.1581*	-0.0613*	0.0477*	0.0574*	0.1452*
(10) $trust_j$	0.0283*	0.0304*	0.1531*	-0.0907*	0.0035	0.0115	-0.1168*	0.0008
(11) cp_i^t	0.0350*	0.0012	0.0824*	-0.1505*	0.0003	-0.0073	-0.0697*	0.0742*
(12) $gdp\ growth_j^t$	-0.0159	-0.0012	0.0165	0.1068*	-0.001	0.0322*	-0.0033	0.0234*
(13) $capitalization_j^t$	0.0321*	0.0132	0.0308*	0.0456*	-0.0059	0.0687*	-0.0125	0.1422*
(14) $stocks_j^t$	0.0882*	0.0581*	0.0377*	0.0219*	-0.002	0.0599*	-0.0102	0.1308*
(15) gdp_j^t	0.2465*	0.1402*	-0.0012	0.0761*	0.0076	0.0192*	0.0224*	0.0848*
(16) $Inst\ stab_j^t$	0.0013	-0.0132	0.0369*	-0.1783*	-0.0049	-0.0052	-0.0673*	-0.0468*
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(9) $VC\ synd_{i \rightarrow j}^t$	1.0000							
(10) $trust_j$	0.1084*	1.0000						
(11) cp_i^t	0.1582*	0.6501*	1.0000					
(12) $gdp\ growth_j^t$	-0.0751*	-0.0967*	-0.2901*	1.0000				
(13) $capitalization_j^t$	0.0744*	0.2278*	0.4028*	0.1375*	1.0000			
(14) $stocks_j^t$	0.1714*	0.2981*	0.3481*	0.0237*	0.7248*	1.0000		
(15) gdp_j^t	0.3047*	0.1052*	0.0700*	-0.0786*	0.0641*	0.3500*	1.0000	
(16) $Inst\ stab_j^t$	0.0519*	0.5465*	0.7755*	-0.2734*	0.2430*	0.1850*	-0.0280*	1.0000

This table presents Pearson correlation coefficients

* Indicates significant correlations at the 1 %-level

cultural distance, lending again support to Hypothesis 2.1. When investing in developed economies, syndication with domestic partners, which can be interpreted as a result of relational trust, indeed seems to be common practice in mitigating the effects of high geographical, cultural, and institutional distance, a finding that supports Hypothesis 2.1. This also holds true when testing for the effect of relational and institutional trust together in Model 4. Surprisingly, institutional trust appears to have no significant effect when only considering investments in developed economies. In line with Hypothesis 2.2, our findings suggest that institutional trust is *ex-ante* sufficiently established for developed economies to estimate the viability of investing in a developed jurisdiction.

For the sub-sample of emerging destination countries, the picture changes substantially. The R^2 drops to single-digit values, and most coefficients completely lose their

significance. Neither geographical and cultural distance nor commonly used macro variables such as GDP growth or corruption in the destination country seem to have any explanatory power at all, with destination country market capitalization as the only exception. In Model 6, we also introduce relational trust ($VC\ synd_{i \rightarrow j}^t$), which was highly significant in the sub-sample of developed economies. As expected in Hypothesis 2.4, in the context of emerging economies, it again loses its explanatory power. Finally, Model 7 includes the measure for institutional trust in the destination country, which, in contrast to the developed economies sub-sample, appears to have a positive coefficient significant at the one-percent level. When jointly testing for the effects of institutional and relational trust in Model 8, the results remain mostly unchanged. However, in this model, we find a positive impact of institutional stability, at least at the 10 % level.

Table 7 Correlation matrix deal level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) <i>deal host</i>	1.0000							
(2) <i>gdp_j^t</i>	0.3144*	1.0000						
(3) <i>gdp cap_j^t</i>	0.2667*	0.4751*	1.0000					
(4) <i>gdp growth_j^t</i>	-0.1386*	-0.1139*	-0.4336*	1.0000				
(5) <i>capitalization_j^t</i>	0.1715*	0.3327*	0.3288*	0.0980*	1.0000			
(6) <i>cp_j^t</i>	0.2441*	0.0760*	0.6577*	-0.4051*	0.3978*	1.0000		
(7) <i>trust_j</i>	0.0397*	0.1050*	0.2448*	0.1830*	0.1511*	0.2586*	1.0000	
(8) <i>dist geo_{mean(i,j)}</i>	-0.0002	0.4607*	-0.0465*	0.1908*	0.1384*	-0.3004*	-0.0316*	1.0000
(9) <i>dist cult_{mean(i,j)}</i>	-0.1749*	-0.1897*	-0.3067*	0.1823*	-0.1970*	-0.3176*	-0.0017	0.1571*
(1) <i>legal_{max(i,j)}</i>	0.0931*	0.0681*	0.1173*	-0.0443*	0.1248*	0.1113*	-0.0865*	0.0151
(11) <i>lang_{max(i,j)}</i>	0.0699*	0.1082*	0.0995*	-0.003	0.1715*	0.0494*	-0.1603*	0.0991*
(12) <i>exp sector_{max(k)}^t</i>	-0.0418*	-0.1119*	-0.1242*	0.0096	-0.0970*	-0.0959*	-0.0524*	0.0337*
(13) <i>exp country_{max(k)}^t</i>	0.1768*	0.3096*	0.0886*	-0.0612*	0.0459*	-0.0093	-0.011	0.0913*
(14) <i>exp target_{max(k)}^t</i>	0.1577*	0.0512*	0.0838*	-0.0509*	0.0302*	0.0618*	-0.0036	-0.0514*
	(9)	(10)	(11)	(12)	(13)	(14)		
(9) <i>dist geo_{mean(i,j)}</i>	1.0000							
(10) <i>dist cult_{mean(i,j)}</i>	-0.5308*	1.0000						
(11) <i>legal_{max(i,j)}</i>	-0.4955*	0.8125*	1.0000					
(12) <i>lang_{max(i,j)}</i>	-0.0324*	0.0295	0.0550*	1.0000				
(13) <i>exp sector_{max(k)}^t</i>	-0.1990*	0.0792*	0.0849*	0.4169*	1.0000			
(14) <i>exp country_{max(k)}^t</i>	-0.1093*	0.0747*	0.0722*	0.0942*	0.1871*	1.0000		

This table presents Pearson correlation coefficients

* Indicates significant correlations at the 1 %-level

These results indicate that the utilization of relational trust via the syndication with domestic VCs helps to overcome market entry barriers and transaction costs associated with cross-border investments in a geographical, cultural, or institutional distant country. This finding is, at first glance, in line with recent research on cross-border VC investments (e.g., Dai et al. 2012; Dai and Nahata 2013; Tykvová and Schertler 2013), but also highlights that its validity is restricted to practices in developed economies. At least on the aggregated macro-level, no evidence for such practices can be found when targeting emerging economies. We find weak evidence for Hypothesis 2.2, which suggests that institutional trust has an effect on investments in emerging compared with developed economies. Our results highlight the need to further analyze the drivers of venture capital investment in emerging economies. It also suggests that at least a minimum level of institutional trust seems to be a necessary condition to attract foreign venture capital.

The results thus far suggest substantial qualitative differences between stand-alone investments of foreign VCs and the ones including local co-investors. We also find

cross-border investments in developed destination countries to be guided by quite different rationales than the ones targeting emerging economies. Recent research (e.g., Dai et al. 2012; Dai and Nahata 2013) suggests foreign VCs underutilize the potential of joint investments with domestic partners, which our results confirm. To further investigate this issue, we raise the question, in an additional model, how experience and other characteristics of the foreign investors, within and between country, influences the decision to include domestic partners. Thus, in Table 10, we present the results of a logit model with cross-border VC deals as unit of analysis. Our dichotomous dependent variable takes the value of one where the cross-border deal also includes a local VC. Hence, we not aim to analyze the amount, but rather the composition of deals targeting developed vis-à-vis emerging economies. We run the models on the whole population (Models 1–2) as well as the subpopulation only consisting of deals in developed (Models 3–4) and emerging (Models 5–6) destination countries. In the first set of models (Models 1, 3, and 5), we test only for the effects of different forms of distance, where we take the mean of all involved foreign VCs to

Table 8 Random effects GLS regression

	Foreign only		Foreign and domestic	
	(1)	(2)	(3)	(4)
Path dependency				
$VC\ synd_{i \rightarrow j}^{t-1}$	0.300 (0.122)*	0.299 (0.122)*	0.628 (0.060)***	0.628 (0.060)***
Distance				
$dist\ geo_{i \rightarrow j}$	-0.007 (0.003)**	-0.007 (0.003)**	-0.002 (0.001)*	-0.002 (0.001)*
$dist\ cult_{i \rightarrow j}$	-0.288 (0.096)**	-0.318 (0.099)**	-0.072 (0.030)*	-0.075 (0.030)*
$same\ legal_{i \rightarrow j}$	0.012 (0.005)*	0.013 (0.005)**	0.005 (0.002)**	0.005 (0.002)**
$same\ lang_{i \rightarrow j}$	0.013 (0.008)	0.013 (0.008)	0.005 (0.003)	0.005 (0.003)
Trust and relationship				
$trust_j$		0.017 (0.000)***		0.002 (0.002)
$trade_{i \rightarrow j}^{T-1}$	0.154 (0.191)	0.148 (0.185)	0.023 (0.031)	0.022 (0.030)
Institutions				
cpi_j^t	0.018 (0.036)	0.011 (0.037)	0.009 (0.016)	0.009 (0.016)
$inst.\ stab_j^t$	-0.003 (0.002)	-0.004 (0.001)*	-0.001 (0.001)	-0.001 (0.001)
Δcpi_j^t	-0.019 (0.027)	-0.022 (0.027)	-0.003 (0.010)	-0.003 (0.010)
Controls				
gdp_j^{t-1}	0.157 (0.048)****	0.160 (0.048)***	0.058 (0.016)***	0.058 (0.016)***
$gdp\ cap_j^{t-1}$	0.146 (0.054)**	0.139 (0.053)**	0.052 (0.024)*	0.051 (0.024)*
$gdp\ growth_j^{t-1}$	0.042 (0.018)*	0.038 (0.017)*	0.013 (0.010)	0.013 (0.010)
$capitalization_j^{t-1}$	0.039 (0.030)	0.045 (0.030)	0.002 (0.008)	0.003 (0.008)
Δgdp_j^{t-1}	-0.007 (0.009)	-0.008 (0.009)	-0.001 (0.003)	-0.002 (0.003)
$\Delta gdp\ cap_j^{t-1}$	-0.126 (0.047)**	-0.127 (0.047)**	-0.045 (0.022)*	-0.046 (0.022)*
$\Delta gdp\ growth_j^{t-1}$	-0.028 (0.014)*	-0.029 (0.014)	-0.008 (0.006)	-0.008 (0.006)
$\Delta capitalization_j^{t-1}$	0.064 (0.029)*	0.057 (0.029)*	0.014 (0.005)**	0.013 (0.005)**
λ (imr)	0.005 (0.003)	0.006 (0.003)*	0.002 (0.001)*	0.002 (0.001)*
Year dummies	Yes	Yes	Yes	Yes
N	20,053	20,053	20,053	20,053
R^2 (overall)	0.127	0.128	0.423	0.423
R^2 (adjusted)	0.127	0.127	0.423	0.422

Dependent variable: VC propensity. This table presents random effects panel data estimates of the impact of venture capital propensity on the difference between foreign VC-only investment and foreign and local VC syndication by controlling different facets of characteristics. Variables are as defined in Table 3. Standard errors in parentheses. Subscript i indicates the source country, j the destination country

*, **, *** Significant at the 10, 5, and 1 % levels, respectively

construct our variables for geographical ($dist\ geo_{mean(i,j)}$) and cultural distance ($dist\ cult_{mean(i,j)}$). For legal ($same\ legal_{max(i,j)}$) and lingual similarity ($same\ lang_{max(i,j)}$), we maintain the dichotomous nature of the original variable, and let them take the value of one in the event at least one of the foreign VCs is located in a country with the same language or legal system as the destination country. Since our unit of analysis is now the cross-border VC deal, we are able to also test for experience effects in the portfolio company itself ($exp\ target_{max(k)}^t$), its' sector ($exp\ sector_{max(k)}^t$) and finally the destination country

($exp\ country_{max(k)}^t$) of the most experienced foreign VCs in a second set of models (Models 2, 4, and 6).

The results for the whole sample (Models 1–2) again indicate with a negative and significant coefficient for emerging destination countries that VCs indeed appear to be reluctant to create syndicates with partners from emerging economies. In addition, the comparison between developed (Models 3–4) and emerging (Models 5–6) destination countries reveals some interesting differences.

While corruption (cpi_j^t) negatively affects the tendency for foreign VCs to syndicate with a local VC in developed

Table 9 Random effects GLS regression

	Developed DC				Emerging DC			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Path dependency								
$VC\ prop_{i-t}^{-1}$	0.463 (0.091)***	0.456 (0.089)***	0.463 (0.091)***	0.532 (0.121)***	0.162 (0.154)	0.149 (0.140)	0.162 (0.154)	0.088 (0.090)
Distance								
$dist\ geo_{i-j}$	-0.008 (0.003)***	-0.006 (0.003)*	-0.008 (0.003)***	-0.004 (0.002)***	-0.006 (0.005)	-0.005 (0.005)	-0.006 (0.005)	0.001 (0.002)
$dist\ cult_{i-j}$	-0.360 (0.136)**	-0.317 (0.138)*	-0.361 (0.145)*	-0.069 (0.089)	0.068 (0.122)	0.157 (0.147)	0.068 (0.141)	0.075 (0.090)
$same\ legal_{i-j}$	0.015 (0.007)*	0.014 (0.006)*	0.015 (0.007)*	0.012 (0.004)**	0.001 (0.008)	0.000 (0.007)	0.001 (0.008)	-0.002 (0.008)
$same\ lang_{i-j}$	0.015 (0.008)	0.012 (0.008)	0.015 (0.008)	0.009 (0.007)	-0.001 (0.008)	-0.010 (0.010)	-0.001 (0.008)	-0.011 (0.010)
Trust and relationship								
$trust_j$			0.001 (0.011)	-0.002 (0.008)		0.351 (0.186)	0.002 (0.000)***	0.008 (0.000)***
$VC\ synd_{i-t}^{-1}$		0.075 (0.013)***		0.083 (0.011)***				0.601 (0.357)
$trade_{i-t}^{-1}$	0.199 (0.366)	-0.017 (0.357)	0.199 (0.366)	-0.206 (0.223)	0.230 (0.221)	0.212 (0.207)	0.230 (0.221)	0.253 (0.241)
$\Delta trust_{i-t}$	0.010 (0.005)*	0.012 (0.005)	0.010 (0.007)	0.013 (0.006)*	0.024 (0.011)*	0.020 (0.009)	0.024 (0.015)	0.022 (0.012)
Institutions								
cap_{i-t}^j	0.050 (0.026)	0.011 (0.030)	0.048 (0.028)	-0.019 (0.019)	-0.124 (0.101)	-0.177 (0.121)	-0.124 (0.103)	-0.157 (0.099)
$inst.\ stab_{i-t}^j$	-0.010 (0.006)	-0.005 (0.005)	-0.010 (0.005)	-0.009 (0.004)*	0.002 (0.002)	0.011 (0.006)	0.002 (0.003)	0.015 (0.007)*
Δcap_{i-t}^j	-0.017 (0.019)	-0.005 (0.020)	-0.017 (0.019)	0.012 (0.013)	-0.004 (0.045)	0.009 (0.048)	-0.004 (0.045)	0.010 (0.036)
Controls								
gdp_{i-t}^{-1}	0.149 (0.046)**	0.099 (0.047)*	0.150 (0.047)**	0.026 (0.005)**	0.161 (0.078)*	0.060 (0.105)	0.161 (0.074)*	0.023 (0.093)
$gdp\ cap_{i-t}^{-1}$	0.105 (0.048)*	0.107 (0.047)*	0.104 (0.047)*	0.102 (0.033)**	0.298 (0.197)	0.234 (0.165)	0.299 (0.209)	0.132 (0.112)
$gdp\ growth_{i-t}^{-1}$	0.046 (0.014)***	0.051 (0.014)***	0.046 (0.014)***	0.038 (0.014)**	0.044 (0.036)	0.046 (0.036)	0.044 (0.037)	0.063 (0.041)
$capitalisation_{i-t}^{-1}$	0.120 (0.082)	0.108 (0.081)	0.122 (0.088)	0.082 (0.050)	0.153 (0.064)*	0.176 (0.071)*	0.153 (0.061)*	0.145 (0.067)*
$stocks_{i-t}^j$	-0.107 (0.078)	-0.123 (0.079)	-0.109 (0.083)	-0.099 (0.047)*	-0.142 (0.080)	-0.148 (0.081)	-0.142 (0.075)	-0.148 (0.092)
Δgdp_{i-t}^j	-0.021 (0.019)	0.002 (0.020)	-0.022 (0.020)	0.022 (0.011)*	-0.001 (0.010)	0.025 (0.022)	-0.001 (0.011)	0.049 (0.028)
$\Delta gdp\ cap_{i-t}^j$	-0.101 (0.047)*	-0.102 (0.046)*	-0.101 (0.046)*	-0.094 (0.038)*	-0.065 (0.092)	-0.056 (0.084)	-0.065 (0.093)	-0.041 (0.083)
$\Delta gdp\ growth_{i-t}^j$	-0.044 (0.011)***	-0.046 (0.011)***	-0.044 (0.011)***	-0.040 (0.013)**	-0.027 (0.030)	-0.028 (0.029)	-0.027 (0.030)	-0.041 (0.035)
$\Delta capitalization_{i-t}^{-1}$	-0.156 (0.094)	-0.148 (0.093)	-0.157 (0.096)	-0.084 (0.043)	-0.101 (0.043)*	-0.099 (0.041)*	-0.100 (0.041)*	-0.061 (0.035)
$\Delta stocks_{i-t}^{-1}$	0.134 (0.082)	0.134 (0.082)	0.134 (0.083)	0.074 (0.036)*	0.094 (0.053)*	0.105 (0.055)*	0.094 (0.049)	0.099 (0.056)
λ (tmm)	0.011 (0.004)*	0.011 (0.004)*	0.011 (0.005)*	0.011 (0.004)*	-0.001 (0.002)*	-0.003 (0.003)	-0.001 (0.003)	-0.012 (0.008)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	11,080	11,080	11,080	11,080	8973	8973	8973	8973
R^2 (overall)	0.283	0.289	0.283	0.291	0.040	0.042	0.055	0.057
R^2 (adjusted)	0.282	0.288	0.282	0.290	0.038	0.040	0.053	0.055

Dependent variable: VC propensity. This table presents random effect panel data estimates of the impact of venture capital propensity on the difference between developed countries and emerging countries by controlling different facets of characteristics. Variables are as defined in Table 3. Standard errors in parentheses. Subscript i indicates the source country, j the destination country

*, **, *** Significant at the 10, 5, and 1 % levels, respectively

Table 10 Logit regression

	All		Developed DC		Emerging DC	
	(1)	(2)	(3)	(4)	(5)	(6)
Destination country						
gdp_j^{t-1}	3.710 (0.502)***	3.184 (0.480)***	2.736 (0.700)***	2.232 (0.645)***	3.584 (1.344)**	3.338 (1.433)*
$gdp\ growth_j^{t-1}$	-0.040 (0.017)*	-0.027 (0.017)	-0.064 (0.028)*	-0.070 (0.028)*	-0.103 (0.038)**	-0.098 (0.038)**
$capitalization_j^{t-1}$	0.003 (0.001)**	0.002 (0.001)**	0.006 (0.001)***	0.005 (0.001)***	-0.007 (0.001)***	-0.007 (0.001)***
cpi_j^t	-1.801 (0.375)***	-0.923 (0.378)*	-2.826 (0.602)***	-1.369 (0.582)*	1.138 (1.142)	1.332 (1.196)
$trust_j^t$	-0.069 (0.041)	-0.071 (0.041)	-0.055 (0.068)	-0.077 (0.066)	0.486 (0.115)***	0.477 (0.114)***
$emerging_j$	-0.783 (0.146)***	-0.635 (0.143)***				
Dyad						
$dist\ geo_{mean(i,j)}$	0.081 (0.028)**	0.079 (0.027)**	0.043 (0.030)	0.038 (0.029)	0.418 (0.111)***	0.431 (0.115)***
$dist\ cul_{mean(i,j)}$	-3.707 (1.384)**	-1.308 (1.422)	-3.460 (1.478)*	-0.891 (1.526)	-2.080 (5.539)***	-2.390 (5.660)***
$same\ legal_{max(i,j)}$	0.273 (0.099)**	0.270 (0.099)**	0.327 (0.118)**	0.306 (0.116)**	0.633 (0.230)**	0.587 (0.232)*
$same\ lang_{max(i,j)}$	-0.206 (0.099)*	-0.175 (0.099)	-0.310 (0.116)**	-0.269 (0.114)*	-0.224 (0.244)	-0.206 (0.246)
$emerging_j$	-0.783 (0.146)***	-0.635 (0.143)***				
Acquiring foreign VCs						
$exp\ sector_{max(k)}^t$		-0.005 (0.001)***		-0.007 (0.001)***		-0.001 (0.002)
$exp\ country_{max(k)}^t$		0.028 (0.003)***		0.034 (0.004)***		-0.007 (0.012)
$exp\ target_{max(k)}^t$		0.525 (0.059)***		0.542 (0.065)***		0.451 (0.151)*
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	7251	7251	6056	6056	1195	1195
Mc Faddens Pseudo $\sim R^2$	0.103	0.127	0.040	0.071	0.113	0.119
log pseudolikelihood	-4375.305	-4257.428	-3704.637	-3582.7357	-618.504	-614.6

Dependent variable: domestic participation in cross-border. This table presents logit regression results on domestic VC participation in cross-border venture capital investments across all jurisdictions, only-developed and only-emerging destination countries. Variables are defined in Table 3. We report robust standard errors in parentheses. Subscript i indicates the source country, j the destination country, and k the acquiring VC

***, **, and * denote significance at the 1, 5, and 10 % levels, respectively

economies, in emerging economies, it appears to be arguably encourage syndication. Institutional trust ($trust_j^t$), however, has a positive impact in the tendency to form foreign-domestic syndicates in emerging economies. Finally, in contrast to deals in developed economies, in emerging economies geographical distance positively affects the willingness to syndicate. Cultural distance however negatively affects the willingness to syndicate. Overall, foreign-domestic syndicates, particularly in emerging economies, seem to help mitigate the effects of geographical distance, but not necessarily cultural difference. However, while foreign VCs are amenable to syndicating with partners from corrupt destination countries, foreign VCs will still require a minimum level of comfort or trust in a country's institutions.

When introducing experience effects (Models 2, 4, and 6), the average investment experience of foreign VCs in the same sector as the investee firm ($exp\ sector_{max(k)}^t$) negatively influences the need to integrate domestic investors, indicating cross-border investments to be even more complicated when carried out in an unfamiliar sector. Put differently, foreign VCs are less likely to seek local syndicated expertise if they feel they have sufficient sector experience. The experience in the destination country ($exp\ country_{max(k)}^t$), in turn, has a positive effect, indicating that domestic partners are found after all in existing networks in the destination country. Both, however, are only true for the sub-sample of developed economies. A possible explanation is that VCs indeed struggle to identify, generally avoid, or prematurely terminate relationships with domestic partners in emerging economies due to friction, prejudices, or dissatisfaction.

Robustness Tests

To ensure that our results are not solely driven by our choice of how to construct the dependent variable, we also ran a set of alternative models. In the reported models, we not only construct the dependent variable in a way where every deal adds one count to all participating source countries, but we also run models where deals either count once per investor for every destination country, or only for the destination country with the largest number of investors. We also replace the number of deals by their value in US dollars. Zephyr unfortunately has no information on the amount invested by individual investors, so we have to assume that all investors participate in the deal with equal investments.⁷ Furthermore, we run the same variable setup in a zero-inflated negative binomial model with the VC

deal count between a country dyad as a dependent variable.⁸ Overall, these measures lead to quite comparable, but less pronounced, results and a lower but acceptable significance and goodness-of-fit of the models. We also tried alternative measures for our institutional trust variable, such as the indices for the quality of law, the government, investor protection, and accountability provided by the World Bank. While less pronounced, these results point in the same direction.

Conclusion

In this paper, we analyze the effects of geographical, cultural, and institutional proximity as well as institutional and relational trust on cross-border VC flows between country dyads. We contrast cross-border investments made by only foreign VCs with investments made by both foreign and local VCs in syndicate. We further analyze cross-border venture capital investment between developed and emerging economies, as many emerging economies have been actively supporting their own venture capital markets pursuant to the perceived success of VC contribution to innovation in more developed jurisdictions (Bruton et al. 2004, 2005). These same economies are seeking not only to attract foreign funds but more specifically foreign expertise as it is thought that not only would local entrepreneurs benefit from specialist VC skills, but also that local VCs would benefit from the transfer of knowledge from the more sophisticated foreign VCs. However, under-developed investor and property protection, high cultural distance, diverging business ethics and practices, and the perception of corruption in certain jurisdictions are obstacles to the development of these markets. An example of a jurisdiction that has faced such challenge is China, and it is this jurisdiction that we have looked to for the motivation of this research. Despite the institutional obstacles, China has been able to not only build a venture capital market from scratch since 1984 (Xiao 2002) but has been able to develop it to the success it is today, and this has been attributed to *guanxi*, or network-based strategies, utilized by market participants (Peng 2003; Pukthuanthong and Walker 2007; Su et al. 2007). By taking into account more jurisdictions, we believe our research provides a more thorough understanding of the balance between institutional factors and network effects from a pattern of international alliances and syndicates in the venture capital industry. In line with prior research, we find evidence that foreign venture capital flow into developed economies is

⁷ Alternative measures for bilateral trade, such as unidirectional trade from SC to DC or DC to SC, sum-of-trade between SC and DC, and trade-only of goods or services *et cetera* also remain insignificant.

⁸ Unfortunately, In Zephyr, the deal value is missing in about 30 percent of the cases, which decreased our number of available observations.

facilitated by the building of relational trust among foreign VCs investing as a syndicate comprising local VCs. However, we find the driving forces of cross-border VC investment activities in emerging economies to be substantially different and widely unexplained by traditional mechanisms used to analyze venture capital flows in the context of developed economies. Consistent with Rousseau et al. (1998), our results suggest institutional trust to be a necessary precondition for foreign VC inflow as well as the formation of foreign-domestic syndicates. Institutional trust thus provides the foundation for building up a critical mass of initial trust to enter a relationship involving proximity.

Our findings highlight not only the need for further analysis of the driving forces of cross-border venture capital flows, but also more specifically the need for analysis to explicitly consider investments in emerging economies. We believe our paper sheds light on a yet under-explored facet driving cross-border venture capital investments and thereby provides guidance for academics on how to integrate more socio-economic determinants in macroeconomic venture capital investment analyses. Future research for example could shed even more light by looking at the effect of changes in the perceptions of trust or changes in political stability (instability) on venture capital fund flows. An analysis of the effect of having a VC partner from the host country on profitability and other performance metrics could also further extend this research. For policy makers, we believe our findings may shed light on the determinants of not only venture capital inflow but also the inflow of VC expertise. As our findings suggest, sophisticated VCs are not necessarily transferring valuable knowledge, such as sector expertise, to local syndicate members but are more likely to extract such knowledge. To tap foreign sources of knowledge and capital, more needs to be done by policy makers in emerging economies to instill institutional trust which appears to be a necessary precondition for foreign venture capital inflow. For example, in China, policies to attract foreign venture capital emphasize strengthening the legal environment. *Guanxi* can only get you so far.

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