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Host country network, industry experience, and international alliance formation: Evidence from the venture capital industry

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ABSTRACT

Integrating resource dependence and social network theories, we investigate how foreign firms' position in alliance network in host country influences their further allying with firms from the host and home countries. We introduce network centrality as a factor that influences two competing forces in alliance formation: willingness and attractiveness. Furthermore, we argue that foreign firms suffering from a low network centrality may find it easier to enhance their network position if they have industry experience. Our analysis of data on US venture capital firms' investment in China supports our theoretical framework. Theoretical and managerial implications of our findings are discussed.

1. Introduction

What determines foreign firms' alliance formation in the host country? As a primary theoretical perspective to understand inter-organizational relationships (Barringer & Harrison, 2000; Hillman, Withers, & Collins, 2009; Oliver, 1990), resource dependence theory (RDT) has attributed alliance formation to underlying resource interdependence (e.g., Yan & Gray, 1994); that is, since firms depend on each other's resources, they have both "inducement" and "opportunity" to form inter-firm links (Eisenhardt & Schoonhoven, 1996).

Despite its foundational role in providing insights into inter-organizational relationships, RDT has some limitations in explaining the nuances of alliance formation. First, although RDT introduces formation of inter-organizational relationships as a strategy for firms to deal with environmental uncertainly, it does not explain *how* they help firms acquire necessary resource to mitigate the uncertainty (Harrigan & Newman, 1990; Hillman et al., 2009). Second, according to Gulati (1995: 620), looking at alliance formation solely from RDT perspective, "does not examine how firms learn about new alliance opportunities and overcome the fears associated with such partnerships". Finally, interdependency among firms has a dynamic nature (Casciaro & Piskorski, 2005; Katila, Rosenberger, & Eisenhardt, 2008); that is, the magnitude and nature of firms' dependency on others may change over time. Yet, RDT "focuses on the need for critical resources and the necessity for social exchange, rather than the more complex theoretical challenge of describing how competencies are developed and how inter-firm transfers of competencies actually take place" (Barringer & Harrison, 2000: 374). With firms becoming more competent, the dynamic of interdependency between them changes and so does their alliance behavior. However, RDT provides a relatively static perspective and does not consider such dynamics.

Responding to these gaps, scholars suggest that integrating RDT with other perspectives especially social network theory, "which shares many common assumptions regarding dependence but emphasizes the socially embedded context of firms" (Hillman et al., 2009: 4), would create a more comprehensive understanding of inter-organizational linkages. Social network perspective helps explain alliance formation within a rich social context in which firms collect, disperse and exchange information with prospective partners and thus help firms learn about new alliance opportunities. It also portrays the changes in inter-organizational relationship due to changes in firms' network attributes and consequently their competencies.

Prior studies that have solely applied social network theory to examine international alliance formation also have limitations. One major limitation is that most of the prior studies have focused on information and resource flow in the network (e.g., Shi, Sun, Pinkham, & Peng, 2014); therefore, although they can well explain

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how firms with certain network features convey information about themselves to prospective partners in the network and thus attract ideal partners (Benjamin & Podolny, 1999; Shi et al., 2014), they largely ignore that network features also impact firms' own dependence on partners and thus willingness to ally (Ahuja, 2000). Due to mutual dependence (i.e., *interdependence*) between firms, both parties' willingness and attractiveness in alliance formation should be analyzed (Eisenhardt & Schoonhoven, 1996).

To fully take advantage of RDT and social network theory, this study incorporates both theories to examine the question: how does foreign firms' existing position in the network they develop in the host country influence their decision to establish further alliances? We introduce network centrality as a factor that influences two competing forces in alliance formation – willingness and attractiveness (Ahuja, 2000; Eisenhardt & Schoonhoven, 1996). We develop this dual rationale of alliance formation by highlighting the paradox faced by foreign firms; that is, as their centrality increases, firms become more attractive in the eyes of other peers; however, after a threshold, their willingness to ally may start declining (i.e., they become less dependent on partners). Moreover, we explain different forms of interdependence in the alliances of foreign firms with local firms versus with firms from their home country.

The cyclical relationship between network position and alliance formation suggests that foreign firms new to the host country will find it harder to move to the center of network. To introduce a solution, we propose that factors exogenous to the host country network may change interdependence among firms, and thus reduce the level of path dependence in alliance formation process. Specifically, we propose that industry experience will play such a moderating role.

Our theoretical propositions are tested on a novel data set composed of the population of US venture capital (VC) firms that invested in mainland China between 1997 and 2010. These US VC firms were selected mainly because they represent the firms from developed countries entering emerging economies, for which using alliances is the dominant strategy (Lu & Hwang, 2010). In addition, China has been the largest importer of VC funds and the United States has been the largest exporter (Wang & Wang, 2011).

This study makes three primary contributions. First, it is among the early efforts to fully integrate RDT and social network theory in depicting the dynamic of alliance formation. This is a direct response to the call by Hillman et al. (2009) for research enhancing the explanatory potential of RDT via its integration with other relevant theories. Our main hypotheses suggest an inverted U-shaped relationship between US VC firms' centrality and the number of Chinese/US partners in new alliances. We argue that while a central position of foreign firms may increase their attractiveness and thus partners' dependence on them, it also reduces their dependence on partners after reaching a certain level. Moreover, industry experience as an exogenous variable weakens the relationship between existing network centrality and further alliance formation through influencing the interdependence between firms. The dynamic relationship between network position, interdependence, and new alliance formation offers a unique setting to observe the emergent structuration of a network that influences firm behavior (Giddens, 1984).

Second, we explore an important but neglected research question in the international business literature: how do foreign firms ally with others from their home country? The literature suggests that cultural and institutional distances[2] can function as a challenging barrier to a successful inter-firm collaboration (Ahlstrom, Young, Nair, & Law, 2003; Ahlstrom, Levitas, Hitt, Dacin, & Zhu, 2014; Nielsen, 2007; Sun, Peng, Lee, & Tan, 2015), and familiarity with potential partners' capability and reliability plays a critical role in alliance formation (Li & Rowley, 2002). Hence foreign firms may partner with others from their home country. However, such foreign–foreign dyad has not yet been explored much.

Third, recent years have witnessed a constantly increasing number of VC firms from developed countries investing in emerging economies (Chemmanur, Hull, & Krishnan, 2012; Pruthi, Wright, & Lockett, 2003). Most of the prior studies have focused on cross-country comparison of VC industry (e.g., Jeng & Wells, 2000; Li & Zahra, 2012; Manigart et al., 2000, 2002). Although these studies provide an excellent picture of VC industry across different countries and clarify its variation in different contexts, they do not explain specific challenges that VC firms face when managing cross-border investments (Mäkelä & Maula, 2006). Additionally, strategic behavior of VC firms when investing across borders still remains under-studied (Jääskeläinen, 2012; Meuleman & Wright, 2011). Hence, this study is timely and empirically important, as it helps uncover one of the most important and common strategic behaviors – syndication of VC firms (Barry, 1994; Lerner, 1994a) – when they commit to international investments.

2. Research context

We study syndication in the VC industry to develop and test our theoretical framework for the following reasons. First, VC industry is regarded as an "intensely social business" (Guler & Guillén, 2010: 391), and syndication is a common strategy in this industry (Barry, 1994; Lerner, 1994a). Syndication arises when two or more VC firms jointly invest in a venture (Brander, Amit, & Antweiler, 2002). VC firms syndicate for a number of reasons. Besides spreading investment risks, syndication helps firms share resources and capabilities to benefit from complementary knowledge and expertise in pre- and post-investment activities (Hopp & Rieder, 2011; Lerner, 1994a). In addition, since VC firms tend to specialize in certain industries, they need partners when there is a compelling investment opportunity beyond their domain of expertise (De Clercq & Dimov, 2004). In fact, "syndication networks will only be broadened if potential new partners can offer additional value beyond the current composition of incumbent syndicate members" (Hopp, 2010: 430). In a syndicated deal, different parties are expected to perform different roles according to their specific capabilities (Wright & Lockett, 2003). It creates the collaborative nature of syndication. Therefore, syndication is the equivalent of alliance in the VC industry where there is a strong need for cooperation and collaboration among parties to achieve shared objectives (Wright & Lockett, 2003).

Second, previous studies have found that VC firms' position in their network, which is the focus of our study, is an important signal of trustworthiness and quality (Gompers & Lerner, 2001; Hochberg, Ljungqvist, & Lu, 2007; Nahata, 2008; Stuart, Hoang, & Hybels, 1999); thus, it is very likely to affect firms' attractiveness and willingness to syndicate.

In this study we examine the population of US-domiciled VC firms that invested in China. The "Chinese VC industry is the largest private equity in the Asia" (Batjargal, 2007: 999). Along with the fast growth of China's economy in recent years, the country's VC industry has grown exponentially. In 2012, approximately $25.3 billion VC funds were raised in China, up from $325 million in 2002 (zero2ipo research, 2013). The Chinese VC industry creates substantial growth opportunities for VC firms from developed countries such as the United States (Wright, Pruthi, & Lockett,

[2] Cultural and institutional distances refer to the extent of dissimilarity between regulatory, cognitive, and normative institutions as well as underlying differences in national cultures between home and host countries (Chao & Kumar, 2010; Trevino & Mixon, 2004).

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