

The impact of corporate venture capital involvement in syndicates

CVC
involvement in
syndicates

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Abstract

Purpose – Prior literature indicates that syndication enhances the likelihood of ventures' successful exits; however, it has neglected the differences among venture capital (VC) investor types. In fact, there are various types of VC investors with distinctive objectives. Therefore, by focusing on ventures backed by corporate venture capital (CVC) and independent venture capital (IVC) investors, the purpose of this paper is to investigate how the relative influence among a heterogeneous group of VC investors in a syndicate affects the likelihood of the venture's successful exit.

Design/methodology/approach – A sample of 1,121 US ventures that received funding from both CVC and IVC investors during 2001 and 2013 are collected. Then, a Cox proportional hazards model is applied to analyze the likelihood of a successful exit (i.e. initial public offering or acquisition).

Findings – The relative reputation of CVC investors *vis-à-vis* their IVC co-investors in a syndicate is negatively associated with the likelihood of the venture's successful exit. This negative relationship is exacerbated when CVC investors are geographically close to the focal venture, and it is weakened when CVC investors syndicate with IVC investors that they have collaborated in the past.

Originality/value – First, this paper advances VC syndication literature by demonstrating that syndication does not positively affect the likelihood of a venture's successful exit unless key syndicate members seek to pursue going public or acquisition strategy. Second, this paper also reveals when CVC is beneficial from the ventures' perspective. CVC participation facilitates ventures' successful exits as long as reputable IVC investors are present in the syndicate. Third, this study contributes to the multiple agency perspective by showing that formal governance mechanisms affect ventures' conduct and performance as well as informal sources of power.

Keywords Venture capital, Syndication, Entrepreneurship, Corporate venture capital, Multiple agency perspective

Paper type Research paper

Received 11 January 2017

Revised 7 July 2017

1 May 2018

Accepted 30 June 2018

Introduction

A venture capital (VC) syndicate represents a group of VC investors who jointly fund a venture (Lerner, 1994), either in the same investment round or, more broadly defined, at different points in time (Brander *et al.*, 2002). Syndication is a common strategy in the VC industry to mitigate the investment risk and improve the management of their portfolio ventures (Dimov and Milanov, 2010; Lockett and Wright, 2001; Manigart *et al.*, 2006; Wright and Lockett, 2003).

The extant VC literature demonstrates that syndication increases the likelihood of ventures' successful exits (Jääskeläinen, 2012). Syndication creates value for ventures by aggregating diverse skills, expertise, and networks (Brander *et al.*, 2002; Cumming *et al.*, 2010; Das *et al.*, 2011; Tian, 2012). The fact that ventures receive funds from multiple investors conveys a favorable signal on their quality (Nahata, 2008). A VC syndicate may also help ventures identify potential acquirers (Jääskeläinen and Maula, 2014). However, the research has so far failed to consider the differences among VC investor types in syndicates.

The positive effects of syndication assume that all VC investors prioritize financial returns through the successful exits of their ventures. Yet, there are various types of VC investors with different incentives and objectives (Brander *et al.*, 2015; Drover *et al.*, 2017; Hellmann, 2002). Different types of VC investors have distinctive preferences for ventures' innovation (Pahnke *et al.*, 2015) and exit strategies (Bertoni *et al.*, 2013). Consequently, when a syndicate consists of multiple VC investors, the syndicate members compete for the



influence over the venture in order to achieve their own interests (Park and Steensma, 2013; Park *et al.*, 2017). Considering the heterogeneity, therefore, the venture's successful exit will largely depend upon not only the resources they bring into the venture but also which investor's preferences prevail over those of the other syndicate members. In this regard, we explore how the relative influence among a heterogeneous group of VC investors in a syndicate affects the likelihood of the venture's successful exit.

Ventures funded by both independent venture capital (IVC) and corporate venture capital (CVC) investors are particularly apt for studying the research question. IVC is the dominant type of VC and has been the focus of prior research works. IVC investors pursue capital gains for their limited partners by guiding entrepreneurs to exits with positive returns (Hellmann and Puri, 2002). Recently, however, there is an increasing volume of an alternative financing source, called CVC (Dushnitsky, 2012). CVC refers to the capital raised by established firms to invest in ventures for strategic purposes (Gompers and Lerner, 1998). According to the National Venture Capital Association, CVC accounts for more than 13 percent of all US VC deals in 2016. Although financial gains are important for CVC investors, they are generally more interested in exploiting possible synergies between their parent company and investees (Drover *et al.*, 2017; Hellmann, 2002; Riyanto and Schwienbacher, 2006). They may even misappropriate the ventures' technological resources for their own interests (Dushnitsky and Shaver, 2009; Katila *et al.*, 2008). Thus, the strategic objectives of CVC investors are likely to conflict with the capital gains through the ventures' successful exits.

In this study, we first hypothesize that the likelihood of a venture's successful exit will decline with the relative reputation of CVC investors *vis-à-vis* IVC co-investors in the syndicate. The multiple agency perspective argues that a firm pays more attention to the demands of the more influential investors (Arthurs *et al.*, 2008; Hoskisson *et al.*, 2002). Although formal governance mechanisms such as ownership percentage or board rights determine the relative influence of ownership constituents, informal sources of influence such as VC investors' reputations are particularly important in the VC context (Ma *et al.*, 2013; Park and Steensma, 2013). Therefore, we argue that CVC investors have the power to drive the venture to focus on long-term innovation activities for the brands and products of their parent company at the expense of immediate commercial success if they are more reputable than their IVC co-investors in the syndicate. Second, we posit that the negative relationship between the relative reputation of CVC investors *vis-à-vis* IVC co-investors and the likelihood of the venture's successful exit will be exacerbated (i.e. more negative) when the CVC investors are geographically proximate to the focal venture. Geographic proximity enhances the quality and quantity of a VC's interactions with ventures (Lee *et al.*, 2011; Sorenson and Stuart, 2001). Thus, the venture's conduct will be more aligned to the strategic objectives of CVC investors even if the CVC investors are less reputable than their IVC co-investors. Third, we theorize that the negative relationship between the relative reputation of CVC investors *vis-à-vis* IVC co-investors and the likelihood of the venture's successful exit will be alleviated (i.e. less negative) when the CVC investors have more prior syndication experience with their IVC co-investors. IVC investors with prior collaboration records are attractive future syndication partners for CVC investors in identifying promising targets (Dushnitsky and Shapira, 2010; Sorenson and Stuart, 2001; Sorenson and Stuart, 2008). Thus, in order to maintain their collaborative relationship with the IVC co-investors, the CVC investors will be reluctant to exercise influence over the venture for their strategic interests even if they have the power to do so.

To test the hypotheses, we gathered a sample of 1,121 US ventures that received funding from both CVC and IVC investors during 2001 and 2013. We applied a Cox proportional hazards model to analyze the likelihood of a successful exit (i.e. initial public offering (IPO) or acquisition). The empirical analysis shows supporting results for the hypotheses.

This paper has several contributions. First, we extend the VC literature on syndication. Previous studies have investigated how syndicate characteristics affect venture performance from a resource perspective. Syndicates' network ties (Abell and Nisar, 2007; Hochberg *et al.*, 2007; Jääskeläinen and Maula, 2014; Nahata, 2008; Walske *et al.*, 2007), knowledge exchange among syndicate members (De Clercq and Dimov, 2008), and diversity among syndicate members (Du, 2016) expand the scope and quality of resources provided to ventures. However, this paper shows that syndication alone does not necessarily increase the likelihood of ventures' successful exits unless key syndicate members have incentives and preferences for the exit events. Second, we enrich the literature on CVC. Studies on CVC are inconclusive about whether CVC investors are beneficial (Alvarez-Garrido and Dushnitsky, 2016; Park and Steensma, 2012) or detrimental (Dushnitsky and Lenox, 2005; Hallen *et al.*, 2014; Katila *et al.*, 2008) to ventures. This paper shows that CVC participation assists a venture's successful exit as long as reputable IVC investors are present in the syndicate and the IVC investors have previously collaborated with the CVC investors. Third, this study advances the multiple agency perspective by showing that not only can formal governance mechanisms affect ventures' conduct and performance (Arthurs *et al.*, 2008; Hoskisson *et al.*, 2002) but informal sources of power as well.

Theory and hypotheses

Research context: IVC and CVC

Traditionally, IVC has been the dominant source of funding for entrepreneurial ventures. For IVC investors, successful exits of investee ventures are at the core of their business model. IVC investors raise capital via limited partnerships with large institutions (e.g. universities, insurance companies, pension funds) who invest in privately held ventures for superior capital gains through a successful exit event such as an IPO or acquisition (Gompers and Lerner, 2004). They collect from limited partners a fixed annual "management fee" based on fund size (circa 1.5–3.0 percent of the invested fund's assets), but a larger portion of their compensation comes from "carried interest," which is about 20 percent of the profits the fund generates (Sahlman, 1990). The successful exits are critical not only for the wealth of the managing partners of IVCs but also for reducing subsequent fundraising efforts and attracting better quality ventures by signaling their investment ability to potential limited partners and innovative entrepreneurs (Gompers and Lerner, 2004). Particularly, since a new fund is raised prior to the liquidation of the previous one, IVC investors are driven by shorter term performance in an effort to grandstand (Bertoni *et al.*, 2013). Therefore, they set up timetables for venture progress toward the exit event and finance accordingly (Gompers and Lerner, 2004). Such staged financing creates a discipline for entrepreneurs in product development and pushes them to complete the milestones in a timely manner (Feld and Ramsinghani, 2013).

An alternative financing source, called CVC, is becoming increasingly prominent in the VC market (Dushnitsky, 2012). Instead of using limited partnerships, CVC investors raise capital mostly from their parent company. CVC investors, and their parent company, often benefit from the innovations created by ventures, regardless of the profitability and the market value of the ventures. First, CVC investment supplements and enhances the productivity of the parent company's internal research and development (R&D) (Dushnitsky and Lenox, 2005; Wadhwa and Kotha, 2006). Established firms can access technological innovations of ventures through CVC investment relationships. They can combine ventures' innovations with their own to create new knowledge. They may even attempt to misappropriate or simply imitate the ventures' technology for their own benefits (Katila *et al.*, 2008), particularly when the technology can be a threat to their current business (Dushnitsky and Shaver, 2009). Second, CVC investment may also stimulate the demand of the parent company's products by investing in ventures that develop complementary

products or technologies (Chesbrough, 2002; Kann, 2000). For instance, Apple's investment in ventures that develop iPhone applications contributed to the proliferation of the Apple App Store at the early stage. High-tech companies like Qualcomm, Microsoft, and Intel also operate active CVC units in order to promote their technology standard or to acquire emerging technology that may complement or substitute their products. Third, CVC investment can reduce the costs for identifying and evaluating potential acquisition targets (Benson and Ziedonis, 2009) or alliance partners (Van de Vrande and Vanhaverbeke, 2013). For instance, Cisco had a prior venture investment in one out of four companies it acquired (Dyer *et al.*, 2004). CVC investment also helps the parent company to embrace new technologies faster than competitors by gaining top management attention on emerging discontinuous technological change (Maula *et al.*, 2013). Consequently, CVC investors have a strong preference for having their investee ventures focus on long-term technological innovations rather than immediate commercial success (Pahnke *et al.*, 2015; Park and Steensma, 2013).

Most CVC investors, however, do not invest exclusively, and they generally syndicate with IVC investors. First, CVC investors lack the capability to search for and identify a target, as they recruit employees within the ranks of the parent company and do not have the incentive schemes that would attract competent venture capitalists from outside (Birkinshaw *et al.*, 2002; Dushnitsky and Shapira, 2010; Hill *et al.*, 2009). Thus, they rely on IVC investors to identify a promising target in distant locations (Sorenson and Stuart, 2001; Sorenson and Stuart, 2008). Second, entrepreneurs prefer that IVC investors lead the deals due to their greater experience in deal structuring and the arranging of additional financing (Maula *et al.*, 2005). Moreover, entrepreneurs tend to receive CVC investments in conjunction with IVC investors in order to mitigate risks of technology misappropriation (Hallen *et al.*, 2014).

According to the multiple agency perspective, the venture's conduct will be determined by the relative influence among the investors with conflicting interests. Considering that a VC investor's reputation is an important source of influence over its investee ventures (Ma *et al.*, 2013; Park and Steensma, 2013), we first theorize how the reputation of CVC investors *vis-à-vis* that of IVC co-investors in a syndicate is associated with the likelihood of the venture's successful exit.

Multiple agency perspective and CVC investors' relative reputation

The multiple agency perspective posits that firms consist of multiple principals speaking with "conflicting voices" and that firm behavior is largely determined by the relative influence of each principal (Arthurs *et al.*, 2008). For instance, firms with a greater equity infusion from public pension funds focus more on internal R&D, whereas firms substantially owned by professional investment management funds tend to favor acquisition as the means for innovation (Hoskisson *et al.*, 2002). This difference in preference for internal R&D is attributed to the time horizons of the two types of investors. Professional investment fund managers have shorter time horizons and prefer strategies that can enhance firm value in the short run. In contrast, public pension funds, which have longer time horizons, are more supportive of internal R&D that can increase firm value in the long run. Similarly, Fiss and Zajac (2004) demonstrate that the orientation toward maximizing shareholder value is contingent on the ownership percentages claimed by different types of entities. More recently, Arthurs *et al.* (2008) found that the IPO underpricing behavior of a venture firm depends on the composition of its board membership and the members' equity ownership.

In the VC industry, not only do formal governance mechanisms such as board representation and equity percentage strongly influence the behavior of ventures but informal sources of power such as investors' reputations do as well (Ma *et al.*, 2013).

Since ventures typically operate in highly uncertain and ambiguous environments, obtaining legitimacy and credibility from reputable investors is critical for accessing the vital resources needed for their growth and survival (Stuart *et al.*, 1999; Zimmerman and Zeitz, 2002). The participation of an investor with a proven record for leading its investees to successful outcomes can be inferred as a signal of quality, and the ventures will have a better chance of fundraising in subsequent rounds (Nahata, 2008). Thus, ventures are three times more likely to accept offers made by investors of high reputation (Hsu, 2004). Moreover, key investors not only provide resources but also assist in setting immediate agendas and goals for ventures (Dew *et al.*, 2008).

When the syndicate of a venture consists of multiple investor types, the venture is more willing to comply with the preferences of the more reputable ones. Indeed, a firm in an exchange relationship exerts more efforts to cater to the needs of the more reputable partner (Castellucci and Ertug, 2010). Similarly, Hayward and Boeker (1998) show that highly reputable analysts in an investment bank have a greater influence on the firm's overall directions.

Therefore, the extent to which ventures serve the strategic interests of their CVC investors will largely depend upon the degree to which the CVC investors are more reputable than their IVC co-investors. For instance, Park and Steensma (2013) illustrate that the post-funding innovation rate of ventures was associated with the reputational hierarchy of investors in syndicates, such that the ventures whose CVC investors were more reputable than other syndicate members applied for more patents to meet the demands of CVC investors. More reputable CVC investors can exert greater influence over their investee ventures and pressure them to dedicate resources to long-term R&D activity (Park and Steensma, 2013). Technology development is, however, only one of eight factors in successful commercialization (Song *et al.*, 2008), and its effect on ventures' financial performance is highly context-specific (Rosenbusch *et al.*, 2011). Since entrepreneurial ventures are resource-constrained, they cannot allocate sufficient resources to other value chain activities that could optimize their market value if resources were dedicated to R&D activities (Mizik and Jacobson, 2003). Consequently, when CVC investors are more reputable than their IVC co-investors are, the ventures will be more committed to long-term innovation at the expense of the speedy commercialization that leads to a successful exit in a short period. In addition, more reputable CVC investors comparatively have greater power over their investee ventures to disclose sensitive technologies, exposing the ventures to a greater risk of technology leakage and imitation (Dushnitsky and Shaver, 2009).

Contrariwise, when CVC investors are less reputable than their IVC co-investors, the IVC investors have a greater influence on the management decisions of investee ventures. Since the objective of IVC investors is maximizing financial returns, they will lead the entrepreneurs along the path to a successful exit, while optimizing value chain activities rather than dedicating resources to the development of innovative technology. Moreover, the presence of reputable IVC investors in the syndicate exerts pressure on the CVC investors to align the strategic objectives with the capital gains for IVC investors (Hallen *et al.*, 2014). Reputable IVC investors can reach out to many other organizations and, as high-status investors, their voices are perceived as credible and noteworthy. Hence, they can effectively broadcast the misbehavior of CVC investors that solely pursue the strategic objectives for the parent company (Hallen *et al.*, 2014; Zhelyazkov and Gulati, 2016). In particular, reputable IVC investors are attractive future syndication partners for CVC investors in identifying promising targets because more reputable IVC investors typically invest in high-quality ventures (Hallen, 2008; Pollock and Gulati, 2007). Thus, CVC investors would not jeopardize their relationship with reputable IVC investors by ignoring the financial returns. We hypothesize that the likelihood of a venture's successful exit will be

determined by the relative reputation of CVC investors *vis-à-vis* their IVC co-investors in the syndicate, as follows:

- H1. The relative reputation of CVC investors *vis-à-vis* IVC co-investors in a syndicate is negatively related to the likelihood of the venture's successful exit.

Geographic proximity between CVC investors and the focal venture

Ventures are encouraged to attend to the strategic interests of nearby CVC investors (Lee *et al.*, 2011). Venture capitalists spend a considerable amount of time performing onsite monitoring (Gorman and Sahlman, 1989) to align the investees with their preferences. Research suggests that travel time is critical to the VC investors' ability to engage in post-investment management (Bernstein *et al.*, 2016). Geographic proximity is thus important in escalating the intensity of interaction between VC investors and their portfolio companies. For instance, proximity is an important determinant of the board membership of venture capitalists (Lerner, 1995). Sorenson and Stuart (2001) also argue that spatial proximity facilitates information exchange and investors' monitoring activities. Investors can more easily have face-to-face meetings on a regular basis and check the development status of proximate investee ventures. In addition, when CVC investors are geographically close, ventures can access the R&D facilities of the parent company more easily and frequently (Alvarez-Garrido and Dushnitsky, 2016). Consequently, the ventures will be committed to more R&D activities, and they will allocate fewer resources to the other value chain activities needed for speedy commercial success.

Moreover, the frequent interaction promotes knowledge spillover to the parent company of CVC investors from their investee ventures. Knowledge spillover effects tend to be localized (Jaffe *et al.*, 1993), and knowledge flows quickly between proximate firms (Phene and Tallman, 2002). Social interaction also stimulates the exchange of confidential information (Yli-Renko *et al.*, 2001). Hence, the proximate CVC investors are in a better position to draw valuable technological information, deteriorating the ventures' market value. Taken together, the geographic proximity will exacerbate the negative effect of CVC investors on the likelihood of a successful exit. We, thus, hypothesize as follows:

- H2. Geographic proximity between CVC investors and the focal venture exacerbates the negative relationship between the relative reputation of CVC investors *vis-à-vis* IVC co-investors and the likelihood of the venture's successful exit.

Prior syndication experience between CVC investors and IVC co-investors

IVC investors with repeated syndications are desirable future syndication partners for CVC investors. They are particularly important to CVC investors for seeking, identifying, and attracting targets with innovative technology in distant locations (Sorenson and Stuart, 2001; Sorenson and Stuart, 2008). Prior ties mitigate uncertainties about the reliability and capability of potential partners (Gulati and Gargiulo, 1999) and facilitate trust building (Uzzi, 1997). Trust between firms reduces the costs of negotiation and conflicts in inter-firm collaboration and increases communication and interaction between firms (Zaheer *et al.*, 1998). Hence, IVC investors are more likely to provide information on potential targets and solicit for syndication to the CVC investors with whom they have previously collaborated (Gulati, 1995; Gulati and Gargiulo, 1999). However, the basis of syndication is a reciprocal "gift/counter-gift" exchange between two investors (Ferrary, 2003, 2010). IVC investors will not solicit for syndication to CVC investors (i.e. gift) unless the CVC investors provide the complementary resources to the investee ventures for the purpose of maximizing the capital gains (i.e. counter-gift). In addition, IVC investors have a strong incentive to broadcast allegations of the opportunistic behavior of the CVC investors (Hallen *et al.*, 2014).

Consequently, CVC investors would not jeopardize their relationship with the desirable IVC co-investors by ignoring the financial returns and solely pursuing the strategic objective (Pollock, 2004). In order to maintain the collaborative relationship, CVC investors will be reluctant to exercise influence over their investee ventures only for their strategic interests even if they have the power to do so. We, thus, hypothesize as follows:

- H3.* Syndication experience between CVC investors and their IVC co-investors weakens the negative relationship between the relative reputation of CVC investors *vis-à-vis* IVC co-investors and the likelihood of the venture's successful exit.

These three hypotheses are summarized in Figure 1.

Methods

Data and sample

We used the Thomson ONE database published by Thomson Reuters to obtain a sample of US ventures funded by syndicates that included CVC investors. We restricted the sample to ventures that received their first funding round after 2001, to avoid any biases generated by the dot.com bubble, and whose last fundraising round occurred between 2006 and 2013. A CVC investor in this study refers to any investor categorized as "Corporate PE" by the Thomson ONE database and the parent company of which is not an equity investment firm (e.g. AIG Private Equity) or non-profit organization (e.g. Kaiser Permanente). To identify the parent firms of CVC investors, we manually searched Google using the fund or investor names as the keywords.

The initial sample comprised 1,580 ventures. We excluded 87 ventures about which we could obtain no information on the parent firms of CVC investors from COMPUSTAT Global or North America databases. We also excluded 331 ventures funded by fewer than two IVC investors in order to consider the syndication dynamics between CVC and IVC investors. Finally, we omitted ventures with missing values. This left us with 1,121 US ventures in the sample.

Variables and measurement

Likelihood of a successful exit. Following prior studies, we consider a venture successful if it has gone public (e.g. Chang, 2004; Gompers and Lerner, 1998; Nahata, 2008; Shane and Stuart, 2002; Stuart *et al.*, 1999) or has been acquired by another firm (e.g. Waguespack and Fleming, 2009) as of November 25, 2014. A total of 469 ventures in our sample (42 percent) have experienced a successful exit. The proportion of successful ventures is higher than normal due to the exclusion of ventures with fewer than two IVC investors.

Relative reputation of CVC investors (vis-à-vis IVC co-investors in the syndicate). We adopt a broader definition of "VC syndicate" (Brander *et al.*, 2002) to include all VC investors that

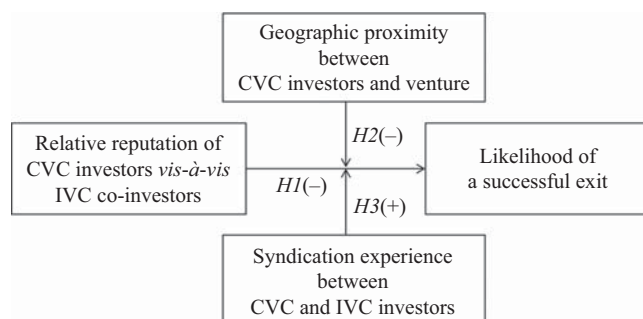


Figure 1.
Theoretical framework

invested in the same venture. We also assume that VC investors in a syndicate other than CVC investors are financially motivated, or IVC investors. The reputational score of each investor in a syndicate was measured based on the following three components: the number of deals, the number of IPOs, and the total dollar amount of investments during the five years prior to the last investment round year of the focal venture. As in Dimov and Milanov (2010), we first standardized the values of each component. We summed up the standardized scores and then normalized them for each year across investors so that the lowest reputation in each year had a value of 0 and the highest had a value of 1. After measuring the reputational level of each investor in the syndicate, we first summed up the reputational scores of all CVC investors in the syndicate, and then divided this value by the total sum of the reputational scores of all investors in the syndicate. Finally, we assigned a value of 0 if the denominator was 0.

Geographic proximity between CVC investors and venture. To measure the geographic proximity between a venture and its CVC investors, information on the locations of the focal venture and the headquarters of the CVC investors' parent firms was obtained from the Thomson ONE and COMPUSTAT databases. We used the location of the headquarters instead of CVC units because the parent firms provide the facilities and complementary assets that ventures need. Then, we calculated the great circle distance between the focal venture and each CVC investor, as in previous studies (Reuer and Lahiri, 2014; Sorenson and Stuart, 2001), using the latitudes and longitudes provided by Google Maps. We averaged the distances in case the venture received from more than one CVC investor. We logged the inverse of the average distance to represent the proximity.

Syndication experience between CVC and IVC investors. First, we counted the number of ventures that each CVC had syndicated with each of its IVC co-investors during the five years prior to the last investment round year of the focal venture. We averaged the quantity of syndication experience possessed by all the CVC–IVC pairs in the syndicate. We then added one and logged to reduce skewness: a higher number indicates that CVC investors and their IVC co-investors have experienced more prior collaboration.

Control variables. Concerning the characteristics of CVC investors, we added a *Revenue size of parent firms* variable. This is a logged average value of the sales revenues of all CVC investors' parent companies in the year in which each CVC made its first investment in the focal venture. We included *CVC investment percentage* as a proxy for the equity ownership of CVC investors. Thomson ONE does not provide exact ownership structures, only the estimated amount of cash infusion from each investor. Thus, we aggregated these values for CVC investors and divided by the total dollar amount of the capital the focal venture raised. We also added *Resource complementarity* to show the strategic fit between the focal venture and the parent company of the CVC investor. We applied a measure for the mutual dependence between two firms using input–output transaction data across industry sectors, as in Casciaro and Piskorski (2005). We averaged these values in case the venture firm received from multiple CVC investors.

To control for syndicate characteristics, we first added *Industry proximity between CVC and IVC investors*. Similar to Sorenson and Stuart (2008), we first computed P_k , the percentage of deals an IVC investor in the syndicate made in the k th industry segment (at the six-digit NAIC level) during the five years prior to the last round year of the focal venture. We then calculated the sum of each P_k that matched with the business segments of the parent company of each CVC investor in the syndicate. Then, we took the average of all CVC–IVC pairs in the syndicate. *CVC investor's early participation* is a dummy variable set to 1 if a CVC investor participated in the first round of the focal venture and 0 otherwise. The logged value of the total number of investments the focal venture received was included as well (*Number of investments*). The logged average value of the geographic distance of all

CVC–IVC pairs in the syndicate is also controlled for *Geographic distance between CVC and IVC investors*.

Regarding the attributes of IVC investors, we first added the quantity of prior syndication experience among IVC investors (*Syndication experience among IVC investors*). We averaged the number of ventures in which each IVC investor had co-invested with another IVC investor in the syndicate during the five years prior to the last investment round year of the focal venture. We also controlled for the highest centrality score of IVC investors in the syndicate (*Centrality of a prominent IVC investor*) by measuring the eigenvector centrality score, as in Hallen *et al.* (2014), of each IVC in the syndicate during the five years prior to the last investment round year of the focal venture.

Several venture characteristics were controlled for. The complementary resource need was measured, following Katila *et al.* (2008). *Manufacturing resource need* was measured as the industry average ratio of fixed assets to sales, and *Marketing resource need* was operationalized as the industry average ratio of advertising expenses to sales in the years during which the initial CVC investments occurred. We collected industry-level data from COMPUSTAT North America at the three-digit NAIC level. Since ventures leverage legal means to protect their technology, we included an *Appropriability regime* variable, constructed using survey data gleaned from the Business R&D and Innovation Survey (BRDIS) conducted by the US Census Bureau. We also controlled for the region of the venture's location (*Venture cluster region*) by assigning 1 if the focal venture was located in California, Massachusetts, or Texas and 0 otherwise. We also used *Industry growth*, *Industry uncertainty*, and *Industry size*, following Dess and Beard (1984). We used COMPUSTAT North America database to obtain industry data for the last investment round year of the focal venture at the three-digit NAIC level. Finally, we included ventures' industry dummies and last round year dummies to control for any unknown industry and year fixed effects.

Analytical approach

To measure the likelihood of a successful exit, we applied a Cox proportional hazard regression model (Cox, 1972), frequently used to investigate venture performance (e.g. Chang, 2004; Nahata, 2008; Shane and Stuart, 2002; Stuart *et al.*, 1999; Waguespack and Fleming, 2009). The hazard model uses the timing of an event (in this study, the number of months taken from the first investment round until the last investment round) to analyze the venture's likelihood of a successful exit.

The hazard model allows us to account for the right-censored feature of the data. Several active ventures have not gone public or have not been acquired within the observation period. A gap of about a year exists between the last observation date and the date we tracked the ventures' exit status. However, we cannot tell whether these active firms would go public or bankrupt after the observation period, thereby creating a right censoring problem.

As a robustness check, we also performed logit regression analysis, using a value of 1 if the focal venture experienced a successful exit in the observation period and 0 otherwise. To minimize the right censoring problem, we reduced the observation period by one year while performing the logit regression analysis. Thus, only 840 venture firms, for which the last round occurred between 2006 and 2012, were used in the analysis.

Results

Table I presents the descriptive statistics and correlation matrix of the variables used in this study. Although some of the coefficients in the correlation matrix exceed 0.5, none of the variables has a VIF score higher than the cutoff value of 2.50. Thus, we conclude that multicollinearity is not an issue.

Table I.
Correlation matrix of
variables with
descriptive statistics

Variables	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Relative reputation of CVC investors	0.218	0.220	1.000								
(2) Geographic proximity between CVC investors and venture	-7.307	2.249	0.051*	1.000							
(3) Syndication experience between CVC and IVC investors	0.720	0.442	0.066*	0.117***	1.000						
(4) Revenue size of parent firms	9.983	1.288	0.183***	-0.073**	0.142***	1.000					
(5) CVC investment percentage	0.173	0.149	0.487***	-0.053*	-0.059*	0.020	1.000				
(6) Resource complementarity	0.168	0.227	0.066*	0.175***	0.143***	-0.023	-0.026	1.000			
(7) Industry proximity between CVC and IVC investors	0.050	0.050	-0.194***	0.161***	0.275***	-0.065*	-0.273***	0.333***	1.000		
(8) CVC investor's early participation	0.315	0.465	0.372***	0.088***	0.009	0.004	0.386***	0.007	-0.151***	1.000	
(9) Number of investments	1.530	0.617	-0.434***	-0.104***	0.189***	-0.081**	-0.418***	-0.010	0.287***	-0.518***	1.000
(10) Geographic distance between CVC and IVC investors	7.954	1.360	-0.105***	-0.650***	-0.087**	0.044	-0.041	-0.167***	-0.071**	-0.100***	0.200***
(11) Syndication experience among IVC investors	0.846	0.491	-0.233***	0.015	0.336***	0.062*	-0.060*	0.022	0.022	-0.101***	0.102***
(12) Centrality of a prominent IVC investor	0.077	0.040	-0.494***	0.043	0.293***	0.076**	-0.186***	0.050****	0.266***	-0.205***	0.237***
(13) Marketing resource need	0.187	0.611	-0.005	-0.015	-0.010	0.055*	0.014	-0.004	-0.013	-0.004	-0.024
(14) Manufacturing resource need	1.925	4.397	-0.079**	-0.066*	0.020	-0.026	0.003	0.074**	0.072**	0.011	0.065*
(15) Appropriability regime	1.219	0.573	-0.014	-0.045***	0.079**	-0.043	-0.048***	0.410***	0.162***	-0.006	0.134***
(16) Venture cluster region	0.699	0.459	-0.042	0.052*	0.010	-0.011	-0.032	0.016	0.060*	-0.058*	0.022
(17) Industry growth	5.268	4.189	0.054*	0.077**	0.026	0.029	0.037	-0.009	-0.035	0.080**	-0.205***
(18) Industry uncertainty	0.063	0.062	0.011	0.027	0.027	0.016	0.033	-0.169***	-0.038	0.024	-0.057*
(19) Industry size	0.699	0.632	-0.032	-0.069**	0.032	0.003	-0.035	0.003	0.081**	-0.032	0.171***

(continued)

Variables	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Relative reputation of CVC investors										
(2) Geographic proximity between CVC investors and venture										
(3) Syndication experience between CVC and IVC investors										
(4) Revenue size of parent firms										
(5) CVC investment percentage										
(6) Resource complementarity										
(7) Industry proximity between CVC and IVC investors										
(8) CVC investor's early participation										
(9) Number of investments										
(10) Geographic distance between CVC and IVC investors	1.000									
(11) Syndication experience among IVC investors	-0.012	1.000								
(12) Centrality of a prominent IVC investor	0.029	0.348***	1.000							
(13) Marketing resource need	-0.114***	-0.008	-0.029	1.000						
(14) Manufacturing resource need	0.045***	0.036	0.016	0.039	1.000					
(15) Appropriability regime	0.041	0.019	0.021	-0.065*	0.224***	1.000				
(16) Venture cluster region	-0.022	0.051***	0.154***	0.024	0.003	0.043	1.000			
(17) Industry growth	-0.051***	-0.030	-0.002	0.060*	-0.098***	-0.093***	0.009	1.000		
(18) Industry uncertainty	-0.024	0.017	-0.007	0.016	-0.069**	-0.344***	-0.039	0.159***	1.000	
(19) Industry size	0.083**	0.020	0.041	-0.008	0.366***	0.202***	0.027	-0.241***	-0.156***	1.000

Notes: $n = 1,121$ ventures. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; **** $p < 0.1$

To test the hypotheses, we conducted an event history analysis with a Cox proportional hazards model. Instead of hazard ratios, we report the coefficients in Table II. Model 1 refers to the baseline specification. The explanatory variables and interaction terms are augmented in Models 2–5. *H1* predicts that the relative reputation of CVC investors *vis-à-vis* IVC co-investors in the syndicate is negatively associated with the likelihood of the venture’s successful exit. Consistent with our expectation, the coefficient of *Relative reputation of CVC*

Table II.
Event history analysis
of the venture’s
likelihood of a
successful exit

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Relative reputation of CVC investors		−0.553* (0.264)	−1.891** (0.712)	−1.241* (0.545)	−3.115** (0.977)
Geographic proximity between CVC investors and venture		0.041 (0.028)	0.076* (0.033)	0.041 (0.028)	0.084* (0.033)
Syndication experience between CVC and IVC investors		0.506** (0.157)	0.529*** (0.158)	0.293 (0.202)	0.260 (0.201)
Relative reputation of CVC investors × Geographic proximity between CVC and venture			−0.187* (0.092)		−0.234* (0.097)
Relative reputation of CVC investors × Syndication experience between CVC and IVC investors				0.821 (0.516)	1.058* (0.530)
Revenue size of parent firms	0.056 (0.037)	0.066***** (0.038)	0.071***** (0.039)	0.073***** (0.038)	0.082* (0.039)
CVC investment percentage	−0.132 (0.362)	0.035 (0.353)	0.004 (0.352)	0.064 (0.347)	0.031 (0.345)
Resource complementarity	−0.411 (0.308)	−0.391 (0.302)	−0.384 (0.302)	−0.395 (0.300)	−0.386 (0.299)
Industry proximity between CVC and IVC investors	0.914 (1.111)	0.362 (1.134)	0.472 (1.133)	0.350 (1.133)	0.486 (1.132)
CVC investor’s early participation	−0.024 (0.122)	−0.062 (0.120)	−0.089 (0.122)	−0.052 (0.120)	−0.082 (0.121)
Number of investments	−1.914*** (0.142)	−1.985*** (0.139)	−2.004*** (0.140)	−1.995*** (0.139)	−2.022*** (0.140)
Geographic distance between CVC and IVC investors	−0.044 (0.041)	0.015 (0.053)	0.002 (0.056)	0.025 (0.054)	0.009 (0.057)
Syndication experience among IVC investors	0.392*** (0.113)	0.242* (0.122)	0.248* (0.121)	0.265* (0.122)	0.277* (0.121)
Centrality of a prominent IVC investor	−0.649 (1.502)	−3.005***** (1.684)	−2.953***** (1.694)	−3.486* (1.727)	−3.568* (1.738)
Marketing resource need	0.229** (0.076)	0.252*** (0.075)	0.247*** (0.075)	0.246** (0.076)	0.238** (0.076)
Manufacturing resource need	0.025***** (0.013)	0.026* (0.012)	0.026* (0.012)	0.025* (0.012)	0.025* (0.012)
Appropriability regime	0.073 (0.123)	0.082 (0.122)	0.079 (0.121)	0.086 (0.121)	0.082 (0.121)
Venture cluster region	0.017 (0.113)	0.047 (0.113)	0.063 (0.113)	0.047 (0.113)	0.070 (0.113)
Centrality of a prominent IVC	0.031***** (0.018)	0.032***** (0.018)	0.031***** (0.019)	0.033***** (0.018)	0.034***** (0.018)
Industry uncertainty	−1.642 (1.241)	−1.724 (1.227)	−1.731 (1.223)	−1.781 (1.223)	−1.816 (1.218)
Industry size	0.012 (0.094)	0.036 (0.092)	0.049 (0.092)	0.040 (0.091)	0.058 (0.091)
Industry dummies			Included		
Year dummies			Included		
χ^2	563.50	593.22	595.17	592.53	593.74
Log likelihood	−2,565.34	−2,557.72	−2,555.88	−2,556.24	−2,553.55

Notes: $n = 1,121$ ventures. Dependent variable: likelihood of a successful exit (initial public offering or acquisition).
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; **** $p < 0.1$

investors is negative and significant ($-0.553, p < 0.05$) both in Model 2 and throughout other models. This indicates that a venture is less likely to experience a successful exit when its CVC investors are more influential than are other VC investors in the syndicate.

H2 posits that the negative relationship between the relative reputation of CVC investors *vis-à-vis* IVC co-investors and the likelihood of the venture's successful exit will be exacerbated (i.e. more negative) when the CVC investors are geographically proximate to the focal venture. As expected, we find supporting results in Model 3 and 5. The interaction term *Relative reputation of CVC investors* \times *Geographic proximity between CVC investors and venture* is both negative and significant in Models 3 ($-0.187, p < 0.05$) and 5 ($-0.234, p < 0.05$), indicating that the geographic proximity exacerbates the negative effect of the CVC investors' relative reputation.

On the other hand, we hypothesize that the negative relationship between the relative reputation of CVC investors *vis-à-vis* IVC co-investors and the likelihood of the venture's successful exit will be alleviated (i.e. less negative) when the CVC investors have more prior syndication experience with their IVC co-investors. We found that the interaction term *Relative reputation of CVC investors* \times *Syndication experience between CVC and IVC investors* is positive but not significant in Model 4. The term is both positive and significant in Model 5 ($1.058, p < 0.05$), however, supporting H3.

Some of the results for the control variables are particularly interesting. In Model 2, the average revenue size of the parent firms of CVC investors is positively related to the likelihood of a successful exit ($0.066, p < 0.1$), indicating that ventures that can access the large resource pool of the parent firms of CVC investors are more likely to succeed. Similarly, the coefficients of the manufacturing ($0.026, p < 0.05$) and marketing ($0.255, p < 0.01$) resource need variables are also positive and significant, showing that ventures with high resource need benefit more from CVC investment, consistent with previous studies that stress the value creation benefits of CVC investment (Katila *et al.*, 2008; Park and Steensma, 2012). When IVC investors in a syndicate are more densely connected with each other (*Syndication experience among IVC investors*), the likelihood of the venture's successful exit increases ($0.242, p < 0.05$). This is consistent with the view that knowledge exchange is facilitated between relationally embedded investors, improving the value-adding assistance available to ventures (De Clercq and Dimov, 2008).

As a robustness check, we first performed a logit regression analysis, with a value of 1 indicating a successful exit and 0 otherwise. To minimize the right censoring problem, we reduced the observation period by one year and the sample size from 1,121 to 840 ventures. Table III reports the results of the analysis. The main effect of CVC investors' relative reputation is negative and significant when interaction terms are present in the model. The interaction terms show results similar to those in Table II. *Relative reputation of CVC investors* \times *Geographic proximity between CVC investors and venture* is negative and significant in Models 8 and 10, and *Relative reputation of CVC investors* \times *Syndication experience between CVC and IVC investors* is positive and significant in Model 10. Therefore, we can conclude that the results are robust regardless of the regression model used.

Discussion

We explored how the relative influence among a heterogeneous group of VC investors in a syndicate affects the likelihood of the venture's successful exit. When a syndicate consists of multiple types of VC investors with different incentives and objectives, venture performance largely depends on which investor's demands the venture is serving. Based on the multiple agency perspective, we theorized that the reputational hierarchy of VC investors in a syndicate is associated with the likelihood of the venture's successful exit.

To address the research question, we focused on ventures funded by syndicates composed of both IVC and CVC investors. Unlike IVC investors, CVC investors raise capital

Table III.
Logit regression
analysis of the
venture's likelihood of
a successful exit

Variables	Model 6	Model 7	Model 8	Model 9	Model 10
Relative reputation of CVC investors		-0.333 (0.380)	-2.125* (0.992)	-1.138**** (0.637)	-3.222** (1.185)
Geographic proximity between CVC investors and venture		0.004 (0.046)	0.067 (0.059)	0.006 (0.046)	0.074 (0.059)
Syndication experience between CVC and IVC investors		0.047 (0.202)	0.066 (0.203)	-0.256 (0.277)	-0.274 (0.275)
Relative reputation of CVC investors × Geographic proximity between CVC and venture			-0.253**** (0.130)		-0.278* (0.133)
Relative reputation of CVC investors × Syndication experience between CVC and IVC investors				1.068 (0.681)	1.218 (0.690)
Revenue size of parent firms	-0.006 (0.057)	0.009 (0.061)	0.013 (0.061)	0.014 (0.061)	0.019 (0.061)
CVC investment percentage	-0.170 (0.474)	-0.067 (0.487)	-0.137 (0.491)	-0.084 (0.491)	-0.162 (0.496)
Resource complementarity	-0.562 (0.408)	-0.524 (0.413)	-0.509 (0.415)	-0.540 (0.411)	-0.530 (0.414)
Industry proximity between CVC and IVC investors	2.210 (1.910)	2.455 (1.981)	2.533 (2.002)	2.416 (1.971)	2.502 (1.993)
CVC investor's early participation	-0.431* (0.170)	-0.430* (0.173)	-0.456** (0.174)	-0.419* (0.173)	-0.446* (0.174)
Number of investments	0.303* (0.153)	0.300**** (0.155)	0.289**** (0.155)	0.292**** (0.155)	0.278**** (0.155)
Geographic distance between CVC and IVC investors	0.023 (0.058)	0.023 (0.073)	0.023 (0.074)	0.031 (0.075)	0.032 (0.075)
Syndication experience among IVC investors	-0.020 (0.158)	-0.038 (0.166)	-0.053 (0.165)	-0.017 (0.166)	-0.030 (0.165)
Centrality of a prominent IVC investor	1.813 (2.168)	0.761 (2.505)	0.944 (2.513)	0.190 (2.530)	0.310 (2.537)
Marketing resource need	0.184 (0.124)	0.184 (0.125)	0.174 (0.125)	0.184 (0.124)	0.173 (0.124)
Manufacturing resource need	0.005 (0.017)	0.004 (0.017)	0.005 (0.017)	0.003 (0.017)	0.003 (0.017)
Appropriability regime	0.187 (0.177)	0.193 (0.178)	0.184 (0.179)	0.189 (0.180)	0.178 (0.181)
Venture cluster region	-0.037 (0.166)	-0.033 (0.167)	-0.004 (0.167)	-0.026 (0.167)	0.007 (0.167)
Centrality of a prominent IVC	0.033 (0.025)	0.032 (0.025)	0.029 (0.025)	0.034 (0.025)	0.032 (0.025)
Industry uncertainty	-3.933* (1.740)	-3.916* (1.742)	-3.909* (1.742)	-3.894* (1.757)	-3.883* (1.760)
Industry size	0.123 (0.152)	0.132 (0.153)	0.137 (0.154)	0.141 (0.153)	0.149 (0.154)
Constant	-0.331 (0.897)	-0.367 (0.901)	0.087 (0.947)	-0.189 (0.910)	0.331 (0.960)
Industry dummies			Included		
Year dummies			Included		
χ^2	64.99	65.38	68.24	67.41	70.11
Log likelihood	-545.77	-545.40	-543.64	-544.22	-542.15

Notes: $n = 840$ ventures. Dependent variable: likelihood of a successful exit (initial public offering or acquisition). * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; **** $p < 0.1$

from their parent company, and they can benefit disproportionately from the technological innovations of their investee ventures. Hence, we find that the likelihood of a venture's successful exit declines with the relative reputation of CVC investors *vis-à-vis* their IVC co-investors in the syndicate, because the CVC investors exert pressure on the venture to allocate more resources on long-term R&D projects at the expense of other value chain activities for commercial success. In addition, the influence of CVC investors over the venture is enhanced when they are geographically proximate to the venture. In line with this logic, the empirical results show that the likelihood of a successful exit declines even if the CVC investors are less reputable than their IVC co-investors. However, we find that the

negative association between the relative reputation of CVC investors and the likelihood of a successful exit is alleviated when the CVC investors have syndication experience with their IVC co-investors. This is because the CVC investors will not exercise influence over the venture only for their strategic interests in order to maintain their collaborative relationships with the IVC co-investors.

Contributions and implications

This study contributes to several research streams. First, it advances the literature on VC syndication and venture performance. The literature has focused on the syndicate characteristics that increase value-added potential, indicating that syndication is positively related to the likelihood of ventures' successful exits. First, the presence of well-networked VC investors in a syndicate improves its value creation capacity (Abell and Nisar, 2007; Hochberg *et al.*, 2007; Jääskeläinen and Maula, 2014; Nahata, 2008; Walske *et al.*, 2007), since it is human capital that VC investors leverage for value creation (Casson and Martin, 2007). Second, knowledge exchange among syndicate members is important for enhancing venture performance. Thus, syndicates comprised of VC investors that have previously collaborated generate more value for their investee ventures (De Clercq and Dimov, 2008). Third, the diversity of syndicate members is also positively associated with the likelihood of ventures' successful exits because diversity expands the scope of the resources provided to ventures (Du, 2016).

However, the research has ignored the fact that various types of VC investors participate in syndicates. All VC investors provide resources and nurture their investee ventures for the sake of their limited partners. IVC investors, the conventional type of VC investors, achieve their investment objective of maximizing financial returns through ventures' successful exits. However, other types of VC investor, such as CVC investors, seek strategic advantages for their parent company rather than capital gains from their investments. Thus, the involvement of CVC investors may not have positive effects on the likelihood of ventures' successful exits. Since ventures pay attention to the "voices" of reputable investors, the reputational hierarchy of syndicate members, in conjunction with the relevant investment objectives, is a critical factor determining the likelihood of ventures' successful exits.

Second, this study enriches the literature on CVC from a venture perspective. Despite the recent growth of CVC investment in the VC industry, most studies tend to focus on the antecedents and consequences for corporations that invest in entrepreneurial ventures. This study focuses on the consequences of CVC investment for ventures. Studies on CVC have been inconclusive about whether CVC investors are beneficial (Alvarez-Garrido and Dushnitsky, 2016; Park and Steensma, 2012) or detrimental (Dushnitsky and Lenox, 2005; Hallen *et al.*, 2014; Katila *et al.*, 2008) to ventures. This study shows that CVC investment may be harmful unless reputable IVC investors are present in the syndicate. Moreover, the investment objective of CVC investors is more likely to be consistent with the goal of increasing the venture's market value when CVC and IVC investors have prior syndication experience. This empirical result is in line with Hallen *et al.* (2014), who suggest that the disciplining and aligning roles of IVC investors alleviate the opportunistic behavior of CVC investors. Therefore, entrepreneurs should ensure the presence of reputable IVC investors in the syndicate, particularly when they need to access the complementary assets of nearby corporations via CVC investment.

Third, this study extends the literature on the multiple agency perspective (Arthurs *et al.*, 2008; Hoskisson *et al.*, 2002) by showing that the influence of a particular type of VC investor can be derived from an informal source of power such as reputation. Traditionally, agency theory has focused on the role of formal governance mechanisms in determining the managerial decisions of a firm. However, when firms confront highly uncertain and

ambiguous environments, affiliating with reputable partners is critical for growth and survival (Stuart *et al.*, 1999; Zimmerman and Zeitz, 2002). Therefore, the influence of VC investors is determined not only by how much equity they own but also by the degree of the reputation they have earned in the VC community (Ma *et al.*, 2013).

Limitation and future research

This study has several limitations related to its empirical setting. First, we assumed that VC investors other than CVC investors seek financial gains, although there are various types of VC investors other than IVC and CVC investors. For instance, funds from non-profit organizations or government agencies prioritize social values or public sector improvement. Therefore, their norms and focuses are completely different from those of IVC or CVC investors (Pahnke *et al.*, 2015). However, the proportion of these types of VC investors is very low. IVC and CVC investors are the most salient types in the VC industry (Drover *et al.*, 2017). Second, we operationalized the reputation of each investor using the number of deals, the number of IPOs, and the investments' total dollar amount, following the procedure developed by Dimov and Milanov (2010). However, a more sophisticated measure for reputation, such as that used in Lee *et al.* (2011), needs to be considered in future studies. Third, when we applied the Cox proportional hazards model, we assumed that the syndicate composition remained the same throughout all the funding rounds of the focal venture. In reality, not all VC investors participate or add value to ventures from the first round. Moreover, investors sometimes liquidate their portion of equity and leave the syndicate before the last fundraising round. However, Thomson ONE is limited in its tracking of who the active investors are in each funding round. Fourth, Thomson ONE's information on board representations or rights and the exact equity stake of each VC investor is limited. Although we attempted to control for the effect of formal governance mechanisms, future studies should consider this factor more thoroughly.

Future research could also investigate how entrepreneurs can take advantage of the multilateral competition among CVC investors. A number of ventures in our sample received investments from more than one CVC investor. This study is in line with Hallen *et al.* (2014) in highlighting the importance of IVC co-investors for mitigating the opportunistic behavior of CVC investors. However, entrepreneurial ventures may also increase their bargaining power for obtaining complementary resources by forming multiple relationships with various CVC investors who are in competition (Lavie, 2007).

Future research may also wish to explore how the evolutionary pattern of syndicate formation affects the likelihood of ventures' successful exits. Although we assumed that syndicate composition is exogenously determined, this is far from accurate. A syndicate is formed by VC investors who are geographically proximate (Sorenson and Stuart, 2001) and share a collaboration history (Gulati, 1995). Moreover, syndicate formation is contingent on the characteristics of the investee ventures (Sorenson and Stuart, 2008). A syndicate is formed and dissolved for various reasons (Manigart *et al.*, 2006). It would be fruitful to understand how such endogenous dynamics affect venture performance in order to extend our knowledge of the relationship between syndication and the likelihood of ventures' successful exits.

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