

**CORPORATE VENTURE CAPITAL: IMPORTANT THEMES
AND FUTURE DIRECTIONS**

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INTRODUCTION

In this chapter, we review the academic literature on the corporate venture capital (CVC) phenomenon. In the recent past, Dushnitsky (2006) and Maula (2007) have provided excellent reviews of the emerging CVC literature and have chronicled the evolution of CVC activity across industries and countries. However, since these reviews the literature has grown considerably to include substantial theoretical and empirical work. Also, some of this recent work has taken the perspective of the investee firm receiving CVC funding in addition to the traditional corporate perspective. In this chapter, we complement Dushnitsky (2006) and Maula's (2007) work by also reviewing these recent additions.¹ Based on our review, we first highlight the different research streams that examine the phenomenon, discuss the current state of knowledge in each stream, and then suggest promising directions for future research.

CVC refers to direct equity investments by established companies in privately held entrepreneurial ventures (Basu, Phelps & Kotha, 2011; Dushnitsky & Lenox 2005b, Gompers & Lerner, 1998). These investments represent an approach to forming partnerships with external startup ventures that are distinct from alliances or acquisitions. They are distinct because such investments are characterized by the absence of hierarchical relationships with the funded startup ventures (or "portfolio companies"), and almost always involve the participation of multiple investors in several rounds of funding. Although a CVC investment can result in an alliance between the investor firm and its investee, such an outcome rarely occurs in practice.

¹ These authors provide excellent reviews, but their reviews are limited to examining and synthesizing research on CVC from the corporate perspective.

CVC is the second largest source of funding for independent startup ventures after venture capital (Dushnitsky & Lavie, 2010; Maula, 2007). Although CVC activity in the United States has traditionally been cyclical, established firms have been an important financing source since the mid-1960s (Dushnitsky, 2006). CVC activity grew dramatically in the 1990s and peaked during the dot-com frenzy in early 2000. Despite a sharp drop in funding activity following the dot-com bust, annual CVC investment volumes have risen. In 2009, for instance, the CVC investments totaled over \$31 billion compared to \$143 million invested in 1990 (SDC VentureXpert, 2010).

The academic literature on CVC activity first appeared during the late 1970s (cf. Rind, 1981, Silver, 1979). This early research recognized that CVC activity was not just a way for large firms to invest their surplus funds, but an important and useful approach to entrepreneurship. Researchers have shown that corporate entrepreneurial activity enables firms to adapt in two primary ways: via corporate venturing and strategic renewal (Guth & Ginsberg, 1990). Strategic renewal comprises inward focusing processes that an established firm adopts, which can result in changes to an organization's strategy and structure, which enhance its ability to compete. Corporate venturing, in contrast, implies entering new businesses by expanding operations into existing or new markets (Narayanan, Yang, & Zahra, 2009; Zahra, 1996). Researchers classify corporate venturing as internal and external approaches, depending on where the proposed new venture is located relative to the parent organization (Ginsberg & Hay, 1994; Miles & Covin, 2002; Rind, 1981; Roberts, 1980; Sharma & Chrisman, 1999; Sykes, 1986). Although corporate venturing can result autonomously from internal employee efforts (Burgelman, 1983), firms also look to external sources for new ideas through investments in startup ventures (Chesbrough, 2003; Dushnitsky, 2006; Narayanan, Yang & Zahra, 2009; Wadhwa & Kotha, 2006). It is through such external investments that CVC plays an important role as a significant entrepreneurial mode in established firms (Keil et al., 2009).

Researchers have adopted two broad perspectives to investigate CVC research questions. The first perspective, which encompasses a large majority of the literature, examines research questions from a corporate investor's point of view. The second addresses issues from the investee or portfolio company's perspective. Based on these two perspectives, we organize the extant literature into distinct but related streams. After reviewing each stream in detail, we highlight promising directions for further research from both perspectives.

THE INVESTOR PERSPECTIVE

We categorize the past research adopting this perspective into three important streams. One large research stream is focused on highlighting and empirically validating factors that drive CVC activity in established firms. A second stream attempts to empirically determine the relationship between CVC investment and firm-level performance. A third related stream focuses on enumerating management processes that investors use (or should use) in order to benefit from CVC activity.

Factors Influencing CVC Investment

Many researchers enumerate the motivations that drive CVC investing, and some, using large-sample data from specific industries, attempt to empirically determine the antecedent conditions that affect CVC activity.

Motivations. What motivates a firm to participate in CVC activity? To address this question, researchers distinguish between the financial and strategic benefits that result from CVC activity (Dushnitsky, 2006; Wadhwa & Kotha, 2006). Researchers concur that established firms pursue CVC activity for strategic benefits and not just financial return (Gaba & Meyer, 2008). Chesbrough (2002) even argues that investing solely for financial return is undesirable, since a firm's shareholders could make better use of invested CVC funds if these funds were returned back to them. Allen and Hevert

(2007) show that despite CVC units' inability to generate significant financial gains from investments, they can sustain CVC activity as long as corporate managers perceive future strategic benefits.

Researchers have documented four strategic motivations that drive CVC activity: 1) gap filling, 2) environment scanning, 3) efficiency enhancing, and 4) ecosystem building (cf. Basu et al., 2008).

Gap Filling. Early work in this area has highlighted the role played by non-financial resources (e.g., access to resources or suppliers) in motivating a firm to pursue CVC activity (cf. Winters & Murfin, 1988). However, recent work has begun to emphasize the importance of technology and capabilities as important drivers that propel a firm into CVC activity. Dushnitsky (2006) posits that firms often seek out ventures engaged in developing novel technologies that complement investors' areas of expertise and focus. By investing in such ventures, corporate investors attempt to fill gaps in their technology portfolio. Kann (2000) suggests that firms pursue CVC activity to fill gaps in their capability sets. Chesbrough (2002) advances a prescriptive practitioner-directed typology that links corporate objectives for CVC investing to a firm's current capabilities. Based on this typology, he asserts that gap filling requires a tight link between the venture's capabilities and the investor's current capabilities. Maula (2007) argues that a gap-filling objective necessitates that the investor engage in venture-level learning in order to benefit from CVC activity. Much of the work highlighted here is prescriptive and has yet to be subjected to empirical testing.

Environment Scanning. CVC investments also help firms scan their environments for new technology and/or market-related knowledge. Siegel, Siegel, and MacMillan (1988) pioneered some of the early research on this phenomenon. Based on survey research, they conclude that scouting for

new technologies and/or new markets represent the most important motivation for CVC activity in established firms. More recently, Dushnitsky (2006) observed that knowledge gained from portfolio companies can help investors create new business opportunities or recognize potential technological discontinuities in a firm's external environment. Maula (2007) posits that such environment scanning activity requires market-level learning, which can result in an option to enter new markets. Chesbrough (2002), using his prescriptive framework, posits that to acquire potentially disruptive technologies, investors must choose startup ventures unrelated to their own current capabilities.

Efficiency Enhancing. Research suggests that investors can enhance their internal operating efficiencies by providing startup ventures access to corporate resources (Campbell, Birkinshaw, Morrison, van Basten-Batenburg, 2006; Chesbrough, 2002; Silver, 1979). Silver (1979), for instance, asserts that unutilized plant capacity, factory space, and people can be more efficiently utilized by making such resources available to portfolio companies. Similarly, Campbell et al. (2006) argue that the primary motivation for the CVC programs they examined was to better utilize slack corporate resources and generate financial returns. Chesbrough (2002) specifically suggests that investors can exploit underutilized technologies more productively by making them available to portfolio ventures.

Ecosystem Building. Some researchers have found that firms use CVC investments to stimulate demand for their core products. Firms do this by investing in startup ventures that offer complementary products (Basu et al., 2011; Kann, 2000; Maula, 2007). Kann (2000) describes this as the "synergistic demand" objective, where the investor's goal is to build an ecosystem of complementary products. The relative success of portfolio companies' products in the marketplace, it is argued, can in turn help to increase the demand for the investor's core products. Investors who have this objective can leverage their technologies and those of their portfolio companies to promote them as a potential standard for the industry (Maula, 2007). Researchers often cite Intel Capital, the

venture arm of Intel Corporation, as the prime example of a CVC program that uses this approach to make CVC investments (cf. Kann, 2000; Chesbrough, 2002).²

In summary, it appears that the first two motivations, gap filling and environmental scanning, involve obtaining from portfolio companies valuable tangible and intangible resources that firms do not possess internally (e.g., intellectual property rights, learning about emerging technologies). In contrast, the next two motivations, efficiency enhancing and ecosystem building, involve leveraging internal resources as opposed to seeking external resources. Beyond some interesting theoretical frameworks or case studies, researchers have yet to validate many of the literature's assertions. For example, the literature tells us little about the mechanisms firms use (or can use) to fill gaps in their portfolio, or the approach they employ to successfully build a robust ecosystem via CVC activity.

Antecedent Conditions. While motivations that drive CVC activity have been actively researched, a handful of studies using a large sample of firms and sophisticated quantitative analyses have attempted to empirically determine conditions that discriminate CVC investors from others (e.g., Basu et al., 2011; Gaba & Meyer, 2008; Tong & Li, 2011). The rationale underlying much of this work is that firms are likely to undertake CVC programs to pursue uncertain strategic initiatives where the payoffs are difficult to evaluate *a priori*. Since the investment amounts needed are small and the level of integration sought between investor and investee firms is often minimal, such investments represent a low commitment relative to other modes such as alliances and acquisitions. Also, such “option” like properties of CVC investments enable firms to consider multiple, often competing initiatives, without being significantly impacted when they don't yield desired results (Roberts, 1980).

²In order to benefit from this approach, researchers have posited that it is imperative to nurture ventures that produce these complements with the firm's resources (e.g., Kann, 2000; Dushnitsky, 2006; Dushnitsky & Shaver, 2009).

Van de Vrande, Vanhaverbeke, and Duysters (2009) provide some direct support for this premise. In examining technology-sourcing deals by large pharmaceutical companies, they found that the sourcing of new technologies from young startup ventures was associated with high technological and market uncertainties. They also found that the pharmaceutical companies in their sample chose less integrated governance modes for initiatives such as CVC and more integrated modes for joint ventures and merger & acquisition deals.

Tong and Li (2011) have examined industry conditions under which established firms prefer CVC investment to acquisition. Using real-options theory, they posit that such firms would choose CVC investments over acquisition in industries with high levels of uncertainty. Thus, they found a positive relationship between CVC activity and level of industry uncertainty. Their findings also showed that this relationship is stronger in industries where investments are relatively irreversible, but weaker in more competitive industries or in those with growth opportunities. In other words, link between antecedents and CVC investment are contingent upon numerous industry-level factors.

Basu et al. (2011), drawing on the resource-based view of interfirm collaboration (Ahuja, 2000; Eisenhardt & Schoonhoven, 1996) and the literature on strategic flexibility, have investigated how firm-level factors *and* industry-level factors influence motivations and opportunities to form new CVC partnerships. They find that dynamic industries, characterized by rapid technological change, high competitive intensity, and weak appropriability, induce firms to pursue CVC. Additionally, they find that incumbents with strong technological and marketing resources and diverse CVC experience have more opportunities and incentives to pursue CVC. This study was based on a longitudinal examination of a sample of Fortune 500 firms consisting of both CVC investors and non-investors, and is the only one to examine how both inducements *and* opportunities can affect CVC activity in established firms.

In contrast to the studies highlighted above, Dushnitsky and Lavie (2010) examine how alliance formation shapes the tendencies of established firms to engage in CVC activity. Using a sample of U.S. software firms, and arguments grounded in the resource-based view of the firm, they demonstrate the number of CVC investments will increase and then decrease with the number of alliances formed. However, the positive association between alliance formation and CVC investment diminishes as firms invest in their own internal resource stock, accumulate experience with CVC activity, and are mature. They show that forming too many alliances may drain a firm's resources, thus making it difficult to sustain and grow CVC activity. This is the only study to examine how two types of interfirm relationships coevolve and how such coevolution affects CVC activity.

In an interesting twist, Gaba and Meyer (2008) examine the contagion processes whereby practices originating in one organizational population (in this case, VC firms) spread and diffuse within a second (IT firms). Specifically, they examine how such across-population factors as geographic proximity and the efficacy of the investments made by the firms' VC population affect the likelihood that IT firms in their sample will adopt a CVC program. Additionally, they examine whether within-population factors (e.g., popularity of VC practices, number of prior adopters, observed benefits resulting from VC activity, proximity to prior adopters) influence the likelihood that an IT firm will adopt a CVC program. They confirm that cross-population and certain within-population contagion effects influence whether firms adopt CVC programs. By disentangling cross- and within-population contagion mechanisms, Gaba and Meyer offer a more complex and nuanced understanding of the factors that drive CVC activity in a sample that goes beyond what others have examined. Readers will likely be interested in the mechanism-based theorizing (Davis & Marquis, 2005) they employ, which uses the organizational field as the unit of analysis rather than organizational population. Their approach suggests that in order to understand why firms adopt CVC

programs, researchers must broaden the scope of their observation to encompass the “larger set of organizational forms and population that make up the CV community” (Gaba & Meyer, 2008: 977).

In a follow-up study using IT firms, Dokko and Gaba (2012) examine how managers’ prior experiences influence the practices and the outcomes of the CVC units they lead. They posit and find that within-firm experience and imprinting from former occupations affect how managers implement practices and prioritize goals for their CVC units. In other words, they show that CVC managers’ career backgrounds influence the way these units are organized and managed and the outcomes that follow. Similarly, Gaba and Bhattacharya (2012) demonstrate that firms are most likely to start CVC units and least likely to terminate them, when their innovation performance is close to socially-driven aspiration levels.

In summary, researchers have enumerated a variety of investor motives—accessing novel technologies, recognizing and reacting to technological discontinuities, learning about potential acquisition targets, and stimulating demand for core products by investing in complements—for pursuing CVC activity. Further, they have begun to systematically propose and empirically validate numerous antecedents that drive firms’ CVC activity. Much of this recent work uses large samples primarily U.S.-based firms, is longitudinal, employs sophisticated quantitative techniques, and draws upon different theoretical bases. For instance, to make their arguments authors draw upon different theoretical perspectives including institutional theory (e.g., Gaba & Meyer, 2008; Dokko & Gaba, 2012), learning theories (e.g., Wadhwa & Kotha, 2006), resource-based view of the firm (e.g., Basu et al., 2011; Dushnitsky & Lavie, 2010), and real-options theory (e.g., Tong & Li, 2011). Also, the research settings for studies have been become longitudinal with researchers using large panel datasets collected from multiple sources (e.g., Corporate Venture Directory and Yearbook; SDC’s Mergers & Acquisition Database, IQ, and Directory of Corporate Affiliations; USPTO;

VentureXpert). The use of such datasets has enabled researchers to better controls for issues pertaining to endogeneity, use fixed effect regression models and to measure change over time (Maula, 2007). As a result, we now have a better appreciation for what drives CVC activity.

Outcomes Achieved Through CVC

Do CVC investments benefit the firm? Researchers have attempted to address this question by examining relationships between CVC investments and outcome measures including firm-level innovation and its impact on other strategic initiatives, new business entry, and, last but not least, financial return.

Firm-level Innovation. Consistent with the notion that CVC investments represent an important external venturing mode, numerous researchers have attempted to isolate firm-level innovation benefits that result from CVC activity. Some types of innovation-related outcomes of CVC activity are: 1) enhancement of corporate investors' innovation capabilities, 2) greater ability to experiment with novel technologies, and 3) firm-level ambidexterity.

Enhancing a Firm's Capability to Innovate. A considerable body of work links firms' CVC activities to innovation capabilities, usually measured by patent activity. Dushnitsky and Lenox (2005b) show a direct positive relationship between CVC investments and firm patenting rates. They also demonstrate that industry-level (e.g., intellectual property regimes) and firm-level factors (e.g., investor's absorptive capacity) positively moderate this main effect.

Similarly, Schildt, Maula and Keil (2005) found that CVC investments enable greater exploratory learning compared with other modes of external corporate venturing such as acquisition and joint ventures. Winston-Smith and Shah (2013) find that CVC investment results in generation of more useful patents by the investor (that is, cited by others). However, the generation of useful

knowledge is moderated by other factors, while investment volume, investment stage, and other corporate investors weaken the main effect.

Keil et al. (2008) investigate how relatedness between an investor's knowledge base and that of a venture's knowledge base affected firm-level innovation. They argue that relatedness benefits knowledge transfers, but posit that too much relatedness impedes innovation. They find an inverted-U moderating effect of investor-venture relatedness to the effect of CVC on investors' innovation performance.

Wadhwa, Phelps and Kotha (2010) examine how the characteristics of an investing firm's portfolio of startups affect its ability to create *exploratory* knowledge. Building on insights from the recombinatory search and interorganizational learning literatures, these authors predict and find that investing firms produce more exploratory knowledge when their portfolios include start-ups that are moderately diverse, mature, and possess codified technological knowledge. This is one of a few studies to examine an investor's portfolio and its impact on exploratory knowledge creation.

While these studies highlight the benefits of CVC investing to assert that start-up firms represent an important opportunity for corporate investors to explore new ideas and knowledge they fail to address issues regarding the potential costs and limits to firm-level innovation that result from increased CVC activity. Using a large sample of telecommunication firms, Wadhwa and Kotha (2006) do just that by focusing on two questions: Are there limits to the knowledge creation benefits investors received from CVC investments? And when are these limits like to manifest? They conclude that, *ceteris paribus*, there is an optimum point beyond which the contribution of CVC

investments to investor innovation declines. Their findings also suggest that when a corporate investor is highly involved with its portfolio firms, it may be possible to reverse this decline.³

Experimenting with New Technologies. Another research stream observes that CVC activity enables firms to experiment with new technologies. Rice et al. (2000) have demonstrated that firms use CVC investments to experiment with sources of radical innovation. Similarly, Keil, Autio, and George (2008) observe that global IT firms engage in “disembodied experimentation,” that is, experimentation outside organizational boundaries, through CVC investments. They discuss how this practice allows incumbent firms to access and understand socially embedded knowledge more easily than others. With increased access and understanding, incumbent firms can better interpret this knowledge within the context of their own practices.

Maula, Keil, and Zahra (2013) showed that as corporations invest in start-ups, they enhance their ability to recognize potentially destructive technological discontinuities in the marketplace faster than rivals who fail to make such investments. To these authors, CVC investment represented a strategic approach that incumbents employ to avoid being blindsided by technological change. Basu and Wadhwa (2013) find that corporate investors can avoid the need to make discontinuous shifts into new and unfamiliar industries by responding to opportunities and threats in their current industries. In a similar vein, Hill and Birkinshaw (2014) find that CVC units that develop new capabilities as well as exploit existing parent capabilities are better positioned to recognize and access disruptive technologies before these cannibalize their business.

Achieving Firm-Level Ambidexterity. A few studies have examined how CVC activity contributes to firm-level ambidexterity. These studies are based on the premise that large firms are

³These studies employ patent citations as a proxy to operationalize innovation. The numerous drawbacks associated with the use of patent data to capture knowledge flow among firms (Alcacer & Gittelman, 2006) are discussed in a later section of the chapter.

more prone (for a variety of reasons) to exploit rather than explore (Levinthal & March, 1993). Hence, structurally separate CVC units with a mandate to explore can assist the investing firm to become ambidextrous, i.e., achieve a better balance between exploration and exploitation.

Keil, et al. (2008) argue that CVC investments can result in both exploitative and explorative learning and that the type of learning an investing firm gains depends upon the characteristics of the start-ups it invests in and the formal structure of its CVC program. Wadhwa and Kotha (2006) treat exploration and exploitation as two ends of a continuum and view CVC investments as more exploratory (Gupta et al., 2006). To these authors CVC investments enable firms to explore or search for new opportunities and for new vistas of knowledge of strategic import.

Basu et al. (2008) too explore this issue in a qualitative study of U.S. CVC investors. In their study, they categorize the strong contributors to parent ambidexterity as those CVC units that receive consistent corporate management support, involve business units of the parent corporation in their portfolio companies, and have a positive reputation in the outside entrepreneurial community. Interestingly they conclude that to in order contribute strongly to parent ambidexterity, a CVC unit itself must be ambidextrous in balancing exploratory search and integration of its activities with mainstream units.

Other Strategic Initiatives. Several researchers have examined the effect of CVC activity on a firm's ability to execute other strategic initiatives. Because of the real-options properties of CVC investments, such investments can provide knowledge helpful in undertaking subsequent initiatives such as alliances and acquisitions. Using the real-options logic, Wadhwa and Phelps (2010), in a longitudinal study of corporate investor-venture dyads, theorize that CVC investments potentially increase the likelihood of subsequent alliance formation with portfolio companies. They found that a CVC investment can result in alliance formation when there are competitors co-

investing with the focal corporate VC in the venture, but will fail to result in an alliance when considerable uncertainty exists about a venture's quality. Using similar logic, Maula and Murray (2008) argue that CVC investments are stepping stones to better evaluate a venture before an investor contemplates, not an alliance, but an outright acquisition. They found that a small percentage of the portfolio companies in their sample were actually acquired by one of their corporate investors.

Benson and Ziedonis (2009) too conceptualize CVC programs as a way to identify potential acquisition opportunities. Additionally, they view CVC program as a way to evaluate the profit potential of technologies and products being developed by startups. In other words, they were curious whether having a stable CVC program would result in better performance. They found that having a stable CVC program did positively affect acquisition performance but that this effect diminishes beyond a certain point.⁴

Entry into New Businesses. Despite the notion that knowledge garnered through CVC investments facilitates entry into new businesses, empirical studies examining this relationship are relatively rare. One exception is a qualitative study by Keil (2000), which demonstrates how CVC can be used to access complementary capabilities of portfolio companies. He examined firms where the acquisition of complementary capabilities facilitated faster investor expansion into new business areas. Another study, by Hill et al. (2009), shows that adopting traditional VC practices such as syndication can help CVC units establish a culture that emphasizes new business development at the firm level, which indirectly influences new business entry as a result.

Financial Outcomes. As discussed, while the main motivation for CVC investments is strategic, certain researchers have examined the impact of CVC activity on financial performance. The underlying rationale is that strategic benefits must ultimately translate into firm-level financial

⁴The study operationalized performance as equity market returns upon the announcement of an acquisition.

outcomes. Additionally, the CVC programs themselves must generate financial returns that meet or exceed the corporate hurdle rates to ensure survival. Studies have looked at the financial outcomes from CVC investing at both the CVC program and firm levels.

Program-Level Financial Returns. At the CVC program level, Allen and Hevert (2007) find that on average, such programs have internal rates of return that are less than their parents' cost of capital, a finding that does not portray CVC programs in a positive light. These authors surmise that despite such underwhelming performance, many CVC units continue to remain in operation because of the strategic benefits they provide to the investing firm.

Adopting a learning perspective, Yang et al. (2008) examined how CVC investors develop selection and valuation capabilities, both of which impact program-level financial returns. In this context, selection capability refers to the ability of a CVC unit to identify target startups for investment, while valuation capability refers to its ability to appropriately value a startup venture.⁵ They found that both selection and valuation capabilities are positively related to program financial returns. According to these authors, capability results from an investor's own investment experience as well as observing the investments made by other firms.

Dushnitsky and Shapira (2010) highlight few other factors that impact financial outcomes. They show that CVC investors who are more aggressive (i.e., invest in early stage ventures), and choose syndicates that are smaller, attain a financial performance comparable to that of VCs.

Firm-Level Financial Returns. Very few studies have examined the link between CVC activity and firm-level financial performance. One that has (i.e., Dushnitsky & Lenox, 2006)

⁵In order to measure an investor's selection capability, the researchers counted the number of startups that resulted in an IPO. An initial public offering (IPO) is usually the primary liquidity event by which investors generate returns on their investments. As a measure of an investor's valuation capability, the study examined the post-money valuations of portfolio companies (i.e., the price per share paid multiplied by the number of outstanding shares after the focal round). According to these authors, a lower post-money valuation is indicative of an ability to negotiate a fair price for the investment.

examines the effect of CVC investing on shareholder returns, measured as a Tobin's Q ratio. This study's findings suggest that CVC programs enhance shareholder returns only when corporate investors pursue both strategic and financial objectives. Hill and Birkinshaw (2014) show that when CVC units develop their own capabilities as well as exploit parent capabilities, they can enhance demand for the parents' offerings. Such offerings, they find, contribute to the parent top-line growth and increase stockholder value.

To summarize, research has examined the relationship between CVC activity and its outcomes along with factors that moderate this relationship. The focus has been on examining how CVC activity benefits parent corporation, the CVC program, and the venture receiving CVC funds. A growing body of evidence now suggests investors do benefit from CVC activity. However, many of the recent studies reviewed here have primarily show CVC activity results in firm-level innovation link. The research examining the impact on outcomes of factors other than firm-level innovation is less developed and fragmented.

Management of CVC Investments

This research stream examines how CVC units manage their investment activity to achieve stated objectives. Researchers have examined how CVC managers 1) identify CVC investment opportunities, 2) manage their relationships with the ventures they invest in, and 3) interact with the corporate-level managers who provide the resources.

Opportunity Identification. Research suggests that generating a deal flow for CVC investments and selecting the appropriate ventures in which to invest can be critical for achieving a CVC program's stated objectives. Researchers have limited their examination to two aspects of opportunity identification—how CVC managers generate adequate investment opportunities (i.e., deal flow), and how they choose the sectors in which to undertake CVC activity.

Generating Deal Flow. Several studies (e.g., Bleicher & Paul, 1987; Cooper et al., 2001; Rind, 1981) highlight how VCs help to generate investment opportunities for corporate investors. Some studies, mostly theoretical, highlight the impact of syndication on deal flow. Syndication, or the practice of co-investing with VCs in a venture, provides the corporate investor with legitimacy and visibility within a venture community, which in turn attract more invitations to co-invest with others. Maula, Keil, and Zahra (2013) demonstrate that syndication results in CVC units attaining a prominent network position, which then facilitates a greater information flow regarding venture opportunities. Yang (2006) makes similar arguments, suggesting that network centrality can help firms access a technologically diverse set of ventures. Souitaris, Zerbinati, and Liu (2012) find that an important way to gain legitimacy within the VC community is to mimic its common decision-making and compensation practices. Interestingly, Hill and Birkinshaw (2008) found that syndication helps those CVC units that emphasize exploration to perform better, both strategically and financially. Basu et al. (2008) found that the practice of syndication well diffused as a practice, to an extent where it is a necessary but not a sufficient condition for superior outcomes. They show that factors other than syndication can also help investors find investment opportunities. Those CVC units that have a reputation for protecting venture interests and are easy to work with (i.e., less focused on corporate bureaucratic rules) tend to attract ventures looking for CVC funds (Basu et al., 2008). Additionally, as noted earlier, prior alliances provide access to more CVC investment opportunities (Dushnitsky & Lavie, 2009).

Selecting Sectors for Investment. Recent empirical work has also examined how corporate investors decide *where* to invest. Findings from this research suggest that some sectors are more likely than others to create the most strategic value for corporate investors. An influential work in this stream is the longitudinal study by Dushnitsky and Lenox (2005a) of corporate investors across

different industries. These authors argue that CVC is primarily a complement to internal R&D, and therefore provides greater marginal returns for investments in sectors characterized by technological opportunities, weaker intellectual property regimes, and a greater need for complementary assets.

In a 2006 study that builds on Dushnitsky and Lenox, Li and Mahoney argue that CVC investments in specific sectors can be used to exercise deferral options as well as create growth options. For these authors, CVC investment is less useful in sectors where market uncertainty is high, indicating that inherent deferral options are not exercised. CVC investments are more likely in sectors where asset usage is flexible, the growth potential is high, and competition is fierce. Under such conditions CVC investments may help create growth options for investing firms.

Keil et al. (2008) investigate the benefits of investing in sectors related to the investor's own knowledge base. While these authors argue for relatedness benefits in knowledge transfers, they caution that too much relatedness between investor firm knowledge and the investee's knowledge base can impede knowledge transfer. Consistent with their argument, they find an inverted-U moderating effect of investor-venture relatedness to the effect of CVC on investors' innovation performance resulting in knowledge transfers.

Recent research has examined how investors identify where and when to invest. Dushnitsky and Shapira (2010) find that the ways investors identify investment targets, and when and how they actually make investment decisions, can often diverge. Most CVC investors fund ventures that belong to large syndicates and those seeking late-stage funding. They do so to help mitigate the uncertainty surrounding the financial returns from individual investments. However, CVC investors who are more aggressive (i.e., invest in early stage ventures), and choose syndicates that are smaller, attain a financial performance comparable to that of VCs.

Why are some firms better at selecting ventures than others? Yang, Narayanan and Zahra (2009) suggest that the ability to select suitable ventures is a valuable capability possessed by some investors but not others. Such a capability results from learning-by-doing (that is, from the corporate investor's own CVC experience) as well as vicariously through other investors' CVC experiences.

Managing Relationships with Portfolio Companies. Since portfolio companies are not hierarchically or contractually bound to share valuable and/or proprietary knowledge, a corporate investor needs to build a collaborative relationship in order to access their knowledge (Basu et al., 2011). Some empirical work has addressed how corporate investors build such relationships (cf. Wadhwa & Kotha, 2006) through such processes as committing resources to assist the portfolio ventures, taking a seat or obtaining observer's rights on investee boards, and via informal communications.

Resource Commitments. Committing resources during the early stages of a venture signals the investor's commitment to the venture's future development and thereby builds cooperation and trust, which in turn facilitates knowledge transfer. However, higher resource commitments and early stage investing can also increase the investor's exposure to uncertainty. Wadhwa and Basu (2013) have found that when investors' objectives involve scouting new technologies or markets, they will likely reduce the initial level of investment in order to mitigate inherent uncertainties. However, with a highly exploratory objective, i.e., involving technological and market-related exploration, investors will increase their level of investment to generate important learning benefits.

Securing Board or Observation Rights. Wadhwa and Kotha (2006) provide evidence that board memberships in portfolio companies can help transfer knowledge effectively. First, such memberships ensure the alignment of the venture's actions with the investor's interests. Second, the investor's representative on the investee's board can assist the venture secure parent firm resources;

this helps to build a beneficial relationship between the CVC unit and the venture.⁶ Additionally, Wadhwa and Kotha (2006) found that forming alliances with portfolio companies along with CVC investment can be instrumental in building strong relationships that result in knowledge being transferred from the investee to the investor.

In a similar vein, Basu et al. (2008) observe that creating a “collaborative blueprint” at the time of initial investment helps foster a strong investor-venture relationship over time. Such agreements can identify the areas of mutual interest where future collaboration may occur. Once such a blueprint is drawn up, it is important to nominate relevant business-unit personnel as either board members or observers to monitor and implement the agreement.

Informal Communication. Along with formal mechanisms, Sykes (1990) emphasizes the importance of informal communication in building a strategically beneficial relationship. Kanter and her colleagues (1990), in their case study of Analog Devices’ venturing arm, also suggest that CVC units use informal monitoring to ensure that a venture meets investor objectives.

Managing Relationships within a Corporate Context. Consistent with the broader CV literature (Block & MacMillan, 1993), some research recognizes that creating a proper climate within a corporate setting can be critical for spawning and nurturing CVC activity. When CVC activity is not seen as a legitimate or useful by mainstream units, program managers may find it difficult to mobilize and leverage the resources needed to nurture portfolio companies and to diffuse the knowledge gleaned to relevant mainstream units. This literature stream posits that hostility from mainstream personnel may arise when mainstream personnel view CVC activity as a threat.

Therefore, CVC managers need to be politically astute in allaying such fears to secure support and

⁶Many investors do not seek a board seat due to legal ramifications and reputational issues entailed by such membership. Instead, they settle for board observation rights. Having board memberships in portfolio companies necessitates greater disclosure and accountability regarding portfolio company performance. An investor who insists on such memberships could develop a reputation as an unattractive investor.

resources. Research suggests that building effective teams, fostering communication, and avoiding direct competition, CVC can help obtain support and resources.

Team Building. To a great degree, support from the mainstream organization comes about through careful selection of the team comprising the CVC unit. Keil (2004) observed that when internally recruited personnel from the parent organization have existing relationships with mainstream personnel, they leverage these relationships to obtain support for the CVC unit. However, according to Basu et al. (2008), focusing only on internally recruited members can have its drawbacks: CVC units may fail to benefit from the connections and expertise that *externally* recruited members bring to the unit. This finding suggests that a mix of internally and recruited team members are more likely to benefit a CVC program.

Motivating and retaining the CVC unit employees is an important aspect of team building within a corporate context. Team members with the skills and aptitude for undertaking private equity investments are hard to find and retain, due to the relative autonomy and higher compensation offered by VCs (Block & Ornati, 1989). Accordingly, research has argued that those CVC unit members with greater autonomy and incentive-based compensation were less likely to leave.

Fast (1981) suggests that adoption by the parent firm of such VC practices as low involvement in operational activities and variable compensation of fund managers would address the autonomy and compensation issues that are important to CVC program managers. Brody and Ehrlich (2001) suggest that other VC practices (e.g., making timely exit decisions, use of flat hierarchies, and clarity of focus) could provide greater autonomy to CVC program managers. Such practices would address the motivation and retention concerns often experienced by CVC units.

However, Hill et al. (2009) find that the relative autonomy of a CVC unit and variable compensation schemes do little to enhance unit performance. In contrast, Dushnitsky and Shapira

(2010) find that pay for performance systems induce CVC unit managers to invest in early stage ventures through syndicates that are relatively small, which in turn enables CVC units to deliver superior performance relative. Hence, those findings that reflect autonomy, variable compensation, and their link to CVC unit performance are mixed at best.

Frequent Communication. Researchers suggest that frequent communication between a CVC unit and its investor is crucial in obtaining support. Based on a survey of CVC unit managers, Hill and Birkinshaw (2014) note that stronger CVC performance results when CVC units communicate frequently with top management *as well as* business-unit personnel. In a qualitative study of German CVC units, Ernst, Witt, and Brachtendorf (2005) find evidence of the role played by frequent communication and by individuals. They conclude that most resource transfers between parent firms and ventures take place through frequent communications and individuals play an important role in such transfers. They assert, therefore, that CVC unit managers must inform business-unit managers of interesting potential ventures and apprise top management of any technological and market trends they observe.

Avoiding Direct Competition. Basu et al. (2008) suggest that one way to co-opt mainstream support is by avoiding direct competition with such units. In this way, CVC units can mitigate mainstream hostility. Specifically, they recommend that CVC units seek business-unit assistance in evaluating potential portfolio companies, and that they avoid investing in technologies that compete with internal development and play down their scale of operations relative to other mainstream units. They posit that such steps will reduce the perception that a CVC program poses a threat, which in turn should reduce mainstream resistance. Soutaris et al. (2012) find that CVC units might trade off isomorphism with VCs (that is, an imitation of VC practices) for isomorphism with parent firms (that is, an imitation of corporate practices) to gain acceptance by business units.

In sum, research has highlighted certain areas of focus for investors, namely identification of investment opportunities, management of relationships with portfolio companies, and management of the corporate context. Table 1 summarizes the literature that examines CVC research from an investor's point of view. In Figure 1, we provide a stylized framework that summarizes our discussion so far. This figure suggests that research using the investor perspective now systematically addresses numerous research questions of import and that there now exists a significant body of cumulative research that others can draw upon and extend.

- Insert Table 1 and Figure 1 about here -

We will now move from the investor perspective to a review of the CVC research that adopts the venture's perspective.

THE VENTURE PERSPECTIVE

Only a relatively small number of papers have examined CVC investments from the perspective of the portfolio company. We have categorized the questions examined by this work into three research streams. The first stream highlights those factors that motivate a startup venture to seek CVC investment. The second investigates outcomes experienced by ventures, which accept CVC investment. The third examines how ventures manage their relationships with a corporate investor.

Factors Influencing Acceptance of CVC Investment

Researchers observe that in addition to the financial resources of corporate investors, startup ventures also seek strategic benefits. However, there are certain drawbacks in accepting CVC funding, such as threat of opportunistic behavior by the investing partner and the relatively greater bureaucratic hurdles in obtaining funding from CVC programs relative to VCs. Given such concerns,

the literature addresses the perceived benefits and costs that influence a venture's propensity for accepting CVC investment, and the factors affecting access to CVC opportunities.

Perceived Benefits. Researchers agree that by working with corporate investors, new ventures can obtain tangible and intangible resources not available from VCs. Benefits to portfolio companies may accrue in the form of financial resources, complementary resources, and endorsement benefits.

Pecuniary benefits are the main reason for seeking CVC investment. CVC investors are known to be relatively patient investors who provide financial capital over multiple funding rounds (Chesbrough, 2002). When a venture's need for financial capital is relatively high, it will often seek CVC (Katila, Rosenberger & Eisenhardt, 2008).

CVC-venture partnership benefits also include access to complementary resources that only a corporate partner can provide. Ventures seek CVC when they need access to production-related and distribution-related resources that are costly to assemble on their own (Maula, 2001). Ventures that accept CVC funding often belong to industries (e.g., Biotechnology) in which companies routinely need and utilize complementary resources (Katila et al., 2008). Ventures believe that corporate investors are more helpful than traditional VCs in assisting them to attract new domestic and foreign customers, and in providing useful information about customer needs (Maula, Autio and Murray, 2005).

McNally (1997) and more recently Maula (2001) have highlighted the endorsement value of associating with prominent and established corporate firms. A CVC-venture partnership sends positive signals to external stakeholders of a venture's underlying quality. First, a CVC partnership suggests that knowledgeable investors have vetted the startup venture's potential. Second, it suggests

that receiving valuable complementary assets from its corporate investors would enhance the venture's future performance.

Perceived Costs. Ventures incur costs when they seek CVC partnerships. If a venture perceives the likelihood of such costs to be high, it will forego an investment from a particular corporate investor. Conversely, it may seek CVC investment only when concerns regarding these costs are alleviated. Research suggests that typical costs include intellectual property misappropriation, potential bureaucratic hurdles in dealing with corporate partners, and the potential for being forced into an undesirable exit.

Given the asymmetric resources and power imbalance between a venture and its corporate investor, the threat of IP misappropriation looms large. To model this balance of power, Hellmann (2002) has provided a framework, which demonstrated that ventures prefer corporate investors over traditional VCs when their knowledge complements the corporate investors' knowledge. When knowledge is substitutive, the potential conflicts of interest are higher and lead to IP misappropriation by the investor.

Dushnitsky and Shaver (2009) find similar empirical results, which suggest that a venture-CVC relationship is more likely when a venture's invention complements a potential investor's products and its IP protection is weak. Kann (2000) observes that ventures may seek a corporate investor during later developmental stages if they perceive that the investor's objective is to learn about new technologies. Accepting CVC funds at a later stage provides the venture more time to strengthen its IP protection and minimize misappropriation efforts.

Bureaucratic hurdles in dealing with a CVC program and the chance of undesired acquisition are additional concerns facing a venture seeking CVC. Basu et al. (2008) posit that investors with a reputation for being a reliable partner can mitigate such concerns. CVC units can enhance their

reputation by simplifying the terms and conditions of the investment deals they offer and foregoing many of the preferential rights typically sought by CVC units.

Besides an evaluation of perceived benefits and costs, other factors influence the likelihood that a venture will obtain corporate funding. Katila et al. (2008) found that ventures have greater access to CVC funding through social capital resulting from ties with other VCs and the geographical location of the venture. Presumably, ventures that start in geographical locations active in entrepreneurship are more likely to access VCs and build up a large number of ties.

Thus far, research has documented that ventures accept CVC investment when their resource needs are high, their concerns about relationship costs (especially IP misappropriation) are low, and they have access to CVC funding through network ties.

Outcomes Achieved Through Receiving CVC

Some research examines how receiving CVC investment results in positive outcomes for the portfolio company. The main outcomes for ventures receiving CVC are knowledge transfers from the corporate investor, growth and profitability.

Like corporate investors seeking access to novel knowledge, portfolio companies also learn from their investors. Maula et al. (2009) show that higher social interaction with the investor and lower safeguards increase the transfer of knowledge from the corporate investor to a startup venture.⁷ Weber and Weber (2007) have suggested that shared norms and goals and positive emotions between investor and venture management can improve the flow of knowledge to a venture.

The authors also indicate that portfolio companies that acquire knowledge often exhibit greater growth and profitability. Similarly, Gompers and Lerner (1998) found that CVC-financed

⁷These authors operationalize knowledge transfer to a portfolio company into three underlying dimensions: market learning, competitor learning, and technological learning. They fail, however, to theorize how the different knowledge types are transferred.

ventures were more likely to result in an IPO than non-CVC-financed ventures. This was particularly true when receiving funds from investors in a related business.

In summary, relative to the literature adopting the investor perspective, very few studies have explored performance outcomes from a venture perspective. Clearly, more studies are needed that specifically examine this issue venture's perspective.

Management of CVC Investments

Managing a larger corporate partner with asymmetric power requires significant effort on the part of the smaller partner; little research has examined how ventures manage their investor relationships. But, a few studies have looked at how ventures select investors and introduce safeguards to minimize a corporate investor's opportunistic behavior.

Investor selection. Once the venture receives corporate investment, inviting the appropriate corporate managers onto its board can be critical for realizing perceived benefits and minimizing the potential downsides of CVC funding. In this regard, research suggests that ventures focus on a corporate investor's degree of knowledge relatedness and stated motivation. Weber and Weber (2007) found that relatedness of knowledge has an inverted-U effect on the knowledge transfers from the investor to the portfolio venture, a finding similar to studies that examined this question from an investor perspective (cf. Keil et al., 2008).

However, relatedness can have a differential impact on venture performance. Gompers and Lerner (1998) demonstrate that business relatedness between investor and venture firm leads to the greater likelihood of an IPO. As in the case of the investor, ventures also benefit from selecting investors with related resources.

Dushnitsky and Shaver (2009) suggest that investors with complementary products make better partners since they are less incentivized to misappropriate a venture's IP. Likewise, Maula, Autio and Murray (2009) advocate choosing investors for whom the venture can provide complementary resources. This will make the investor more dependent on the venture and reduce the potential for opportunistic behavior.

A corporate investor's idiosyncratic motivations can also influence whether it will be invited to participate in funding a venture. As discussed, Kann (2000) has suggested that ventures invite corporate investors seeking novel knowledge only after a venture has strengthened its IP protection. This may require postponing an acceptance of CVC funding during early funding rounds. In other words, ventures at the startup stage may be better off not inviting corporate investors in search of novel technical knowledge.

Safeguards. Research suggests that portfolio companies fearful of a corporate investor acting opportunistically can protect themselves by introducing safeguards. Maula et al. (2009) suggest that a venture limit the ownership stake and number of board seats made available to corporate investors. However, safeguards can also inhibit the likelihood and degree of potential collaboration opportunities between portfolio firms and their investors (Weber & Weber, 2007). Scholars therefore suggest that the establishment of mutually beneficial relationships may obviate the need for safeguards. If the knowledge or technology developed by the venture is critical to the corporate investor, or if there is trust-based relationship between the two parties, the investor is less likely to act opportunistically, obviating the need for safeguards in the first place.

- Insert Table 2 and Figure 2 about here -

It may be advantageous for the venture to create a situation where the corporate investor and venture are mutually dependent on one another. Weber and Weber (2007) emphasize that a trust-

based relationship between the venture and its investor can substitute for formal contractual agreements and lead to knowledge transfer to the venture. They argue that having routines for knowledge sharing and instilling shared goals can help to develop a more trust-based relationship between the partners. Table 2 summarizes the literature on CVC research from an investee's perspective. In Figure 2, we provide a stylized framework that summarizes our discussion so far. Relative to Figure 1 (research on investor perspective), it is clear that research using the venture perspective is still nascent and far less developed. Clearly, the venture perspective provides more opportunities for further research.

FUTURE DIRECTIONS

In this final section, we discuss potential research that scholars can undertake that employ both investor and investee perspectives. We begin by discussing potential research opportunities from the perspective of an investing firm.

Future Research Using the Investor Perspective

Our review suggests that researchers agree that it is strategic returns and not just financial gain that drives CVC activity (Dushnitsky, 2006; Dushnitsky & Lenox, 2006; Gaba & Meyer, 2008; Wadhawa & Kotha, 2006). Past research has enumerated numerous strategic motivations (e.g., gap filling, environmental scanning, efficiency enhancing) that influence CVC investment activity. Researchers have yet to employ such fine-grained distinctions in examining how a firm structures, manages, and evaluates its CVC programs, or, at the program level, how units handle their investments given the different motives. At the minimum, future research should examine how the differential motives moderate the antecedents to CVC activity. Also, examining potential interdependencies among motivational differences, heterogeneity of investee characteristics, and

CVC unit structure may elucidate the complexities and nuances manifested in CVC programs and the potential benefits accruing to an investor.

Researchers have examined industry- and firm-level factors on why some firms and not others participate in CVC activity (cf. Basu et al., 2011; Tong & Li, 2011). But the literature is relatively silent on the impact of institutional changes on a firm's propensity to participate in CVC activity. We believe researchers should examine how changes in the institutional environment affect CVC activity, since these can significantly enhance the attractiveness of CVC activity to a corporate parent. In the U.S., passage of the Sarbanes-Oxley Act may be impacting current CVC activity levels due to the additional reporting mandate and potential liability issues in partial ownership of external companies. Such institutional changes may also be responsible for the cyclical nature one observes in the CVC activity in the United States.

While studies have examined the effect of a firm's internal R&D and the number of alliances in which it participates on CVC activity (Dushnitsky & Lavie, 2010), we know less about how acquisitions or diversification impact the propensity of firm to undertake CVC activity. Such an examination will yield a better understanding of how CVC is linked to, and emerges out of, a firm's other strategic initiatives. Studying the interdependence of different types of interfirm relationships, the sequencing of such relationships, and the outcomes for maintaining portfolios of strategic initiatives can be important to theory development as well as practice.

Research examining investor outcomes from CVC activity has been largely limited to corporate innovation (or transfer of technical knowledge) at the expense of other performance outcomes. Researchers rely on patent citations to measure innovation or knowledge transfer (Dushnitsky & Lenox, 2005b; Schildt et al., 2005; Wadhwa & Kotha, 2006) in lieu of directly examining how knowledge transfer occurs in the firms studied. In other words, existing CVC

research provides little insight into conditions under which investors actually derive exploratory learning benefits from such relationships (Narayanan et al. 2009), not to mention the numerous drawbacks associated with using patent data to capture knowledge flows among firms, a fact that needs no elaboration here (cf. Alcacer & Gittelman, 2006).

This important limitation provides multiple opportunities for further research examining the relationship between CVC activity and firm outcomes. First, researchers need to directly examine the different learning mechanisms employed by corporate investors, as well as the different types of knowledge sought (based on differing motivations) from portfolio firms. A longitudinal qualitative study that delves deeper into how knowledge transfers occur in practice might help us better understand the mechanisms that firms employ to facilitate knowledge transfers. Second, given that multiple motives drive CVC activity, it is critical that researchers examine and employ outcome measures other than innovation (or knowledge transfer) to determine the beneficial impact of CVC activities on the investor.

Researchers have generally recognized the need for CVC units to carefully manage relationships with the corporate parent (cf. Block & MacMillan, 1993; Keil, 2004) and with portfolio companies (cf. Basu et al. 2011; Dushnitsky, 2006). The nature of the relationship with the corporate parent determines the support and resources available to the CVC unit while the relationship with the portfolio firms determines how the investor benefits from investments. However, beyond a few case studies and descriptive surveys, we know little about how such relationships are managed in practice. Nor do we have an adequate understanding of specific processes used by CVC programs to build and nurture such relationships especially in light of the different motivations that effect CVC activity. Clearly, more research in this area would be welcome.

The extant research has focused exclusively on dyadic-level data to study the CVC phenomenon. In general, research focusing on dyadic-level relationships has largely ignored how a firm's collection of CVC relationships or portfolio might impact innovation and other performance outcomes (Wadhwa & Phelps, 2009). Examining a portfolio of CVC investments can be important for two reasons. First, CVC ties within a portfolio may conflict or complement one another, influencing whether the overall value an investor derives from a portfolio is more or less than the sum of the value of individual investments in startups. Second, the characteristics of venture startups in a portfolio (i.e., the knowledge-based resources they possess) may moderate the portfolio's effect on investor performance. In fact, research on inter-organizational collaboration has shown that knowledge resource diversity in an actor's portfolio of ties influences its innovation performance (cf. Rodan & Galunic, 2004). We therefore suggest that researchers explore this phenomenon at the portfolio level in the future.

Future Research Using the Venture Perspective

Extant research using this perspective has emphasized that ventures generally seek CVC funding (relative to VC funding) when they perceive greater benefits or lower costs in doing so. A promising research direction is to evaluate whether CVC investment complements or substitutes other forms of partnerships in ventures with large firms. For example, researchers could examine if CVC relationships arise from other types of alliance that ventures have with large firms, or whether the two are negatively related. Perhaps certain characteristics of larger partners motivate ventures to strengthen relationships through CVC investment, while others would compel them to avoid CVC relationships. Such a study might illuminate the kind of information ventures seek about corporate investors and the actions they take prior to accepting CVC funds. Different ventures may perceive the costs and benefits of CVC investment differently, and it is likely that internal attributes account

for such differences. Hence, we suggest researchers examine how internal characteristics (e.g., management-team composition, marketing and technological capabilities), and external conditions (the availability of VC funds) influence a venture's perception of the costs and benefits of CVC funding.

A few studies have looked at the relationship between CVC investments and performance outcomes from a venture perspective. Some researchers have shown that ventures that are able to access investor knowledge grow more rapidly (Weber & Weber, 2007) and, relative to VC-funded ventures, likely result in an IPO (Gompers & Lerner, 1998). We need additional studies to collaborate such findings and to extend them. Research should also examine how investor characteristics influence venture outcomes and the roles played by different investors in the outcome of a venture's performance.

The research examining the mechanisms implemented by ventures to defend their resources from corporate investors is nascent, and offers significant opportunities for theory development and testing. We know relatively little about safeguards or defense mechanisms (i.e., reducing investor ownership stakes, secrecy, timing, and refusing board seats) that ventures employ, and the research investigating the efficacy of these mechanisms and the conditions under which they provide protection is negligible. Although defense mechanisms and safeguards can protect a venture's resources, they also restrict its ability to learn and collaborate with its CVC investor (Maula et al., 2009). Thus, the question of whether defense mechanisms or safeguards are beneficial in the long run needs examination. Although it is recognized that trust, between an investor and portfolio company can substitute for formal safeguards (Weber & Weber, 2007), the approach used by ventures to gain trust is not well understood. This is another area where more research is needed.

Conclusion

In the last two decades there has been increasing recognition of CVC as an important mode of external venturing. The literature on CVC has evolved from anecdotal work to empirical studies. Prior research has adopted either the investor perspective or the venture perspective, and has addressed issues relating to 1) factors influencing the choice of either party to enter into a CVC relationship, 2) favorable outcomes that each could realize through CVC, and 3) critical management processes leading to realization of the desired outcomes for each. In this chapter we have reviewed the dominant perspectives and themes of the current CVC literature. This review has helped identify promising future directions that research might take. We hope that this work will stimulate new ideas in CVC research resulting in an enhanced understanding of this important phenomenon, with substantive implications for the study of strategic management, entrepreneurship, and innovation.

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Table 1: Review of CVC Research from the Corporate Investor Perspective

Key Themes	Examples
A. Factors influencing CVC investment	
<p>Motivations <i>Financial Motivations</i></p> <p><i>Strategic Motivations</i></p> <ul style="list-style-type: none"> - Gap filling - Environment scanning - Efficiency enhancing - Ecosystem building <p>Antecedents <i>Corporate Investor Environment</i></p> <ul style="list-style-type: none"> - Market and technological uncertainty - Industry competitiveness - Industry growth opportunities - Industry Appropriability <p><i>Corporate investor characteristics</i></p> <ul style="list-style-type: none"> - Investor Resources - Investor Prior alliances - Proximity of Investor to prior CVC adopters 	<p>Allen & Hevert, 2007; Chesbrough, 2002</p> <p>Allen & Hevert, 2007; Basu, Phelps & Kotha, 2011; Campbell et al. 2006; Chesbrough, 2002; Dushnitsky, 2006; Gaba & Meyer, 2007; Kann, 2000; Maula, 2007; Siegel, Siegel, & MacMillan, 1988; Silver, 1979; Wadhwa & Kotha, 2006; Winters and Murfin, 1988;</p> <p>Basu, Phelps, & Kotha, 2011; Dushnitsky & Lenox, 2005a; Tong & Li, 2011; Van de Vrande, Vanhaverbeke, & Duysters; 2009</p> <p>Basu, Phelps, & Kotha, 2011; Dushnitsky & Lavie, 2010; Gaba & Meyer, 2008</p>
B. Outcomes achieved through CVC	
<p><i>Strategic Returns</i></p> <ul style="list-style-type: none"> - Firm level innovation, experimentation & ambidexterity - Other strategic initiatives - Entry into new business <p><i>Financial Returns</i></p> <ul style="list-style-type: none"> - Program Level - Firm Level 	<p>Basu, Phelps, & Kotha, 2008; Benson & Ziedonis, 2009; Hill et al, 2009; Dushnitsky & Lenox, 2005b; Keil, 2000; Keil, Autio, & George, 2008; Maula & Murray, 2008; Maula et al., 2003; Rice et al., 2000; Schildt, Maula, & Keil, 2005; Wadhwa & Kotha, 2006; Wadhwa & Phelps, 2010; Winston-Smith & Shah, 2013</p> <p>Allen & Hevert, 2007; Dushnitsky & Lenox, 2006; Dushnitsky & Shapira, 2010; Hill & Birkinshaw, 2014; Yang et al. 2008</p>
C. Management of CVC Investments	
<p><i>Opportunity Identification</i></p> <ul style="list-style-type: none"> - Generating Deal Flow - Selecting Sectors to Invest in <p><i>Managing Relationships with Portfolio Companies</i></p> <ul style="list-style-type: none"> - Resource Commitments - Securing Board/Observation Rights - Informal Communication <p><i>Managing Relationships Within the Corporate Context</i></p> <ul style="list-style-type: none"> - Team Building - Frequent Communication 	<p>Basu, Phelps, & Kotha, 2008; Bleicher & Paul, 1987; Cooper et al., 2001; Dushnitsky & Lavie, 2009; Dushnitsky & Lenox, 2005a; Dushnitsky & Shapira, 2010; Hill and Birkinshaw, 2008; Keil et al., 2008; Li & Mahoney, 2006; Maula, Keil, & Zahra, 2013; Rind, 1981; Yang, Narayanan, & Zahra, 2009</p> <p>Basu, Phelps, & Kotha, 2008; Wadhwa and Basu, 2013; Kantor et al., 1990; Sykes, 1990; Wadhwa & Kotha, 2006</p> <p>Basu, Phelps, & Kotha, 2008; Block & MacMillan, 1993; Block & Ornati, 1989; Brody & Ehrlich, 2003; Ernst, Witt, Brachtendorf, 2005; Fast, 1981; Hill & Birkinshaw, 2014; Keil, 2004; Souitaris, Zerbinati, & Liu (2013)</p>

Figure 1: A Stylized Framework Summarizing the Extant CVC Literature
(From the Corporate Investor Perspective)

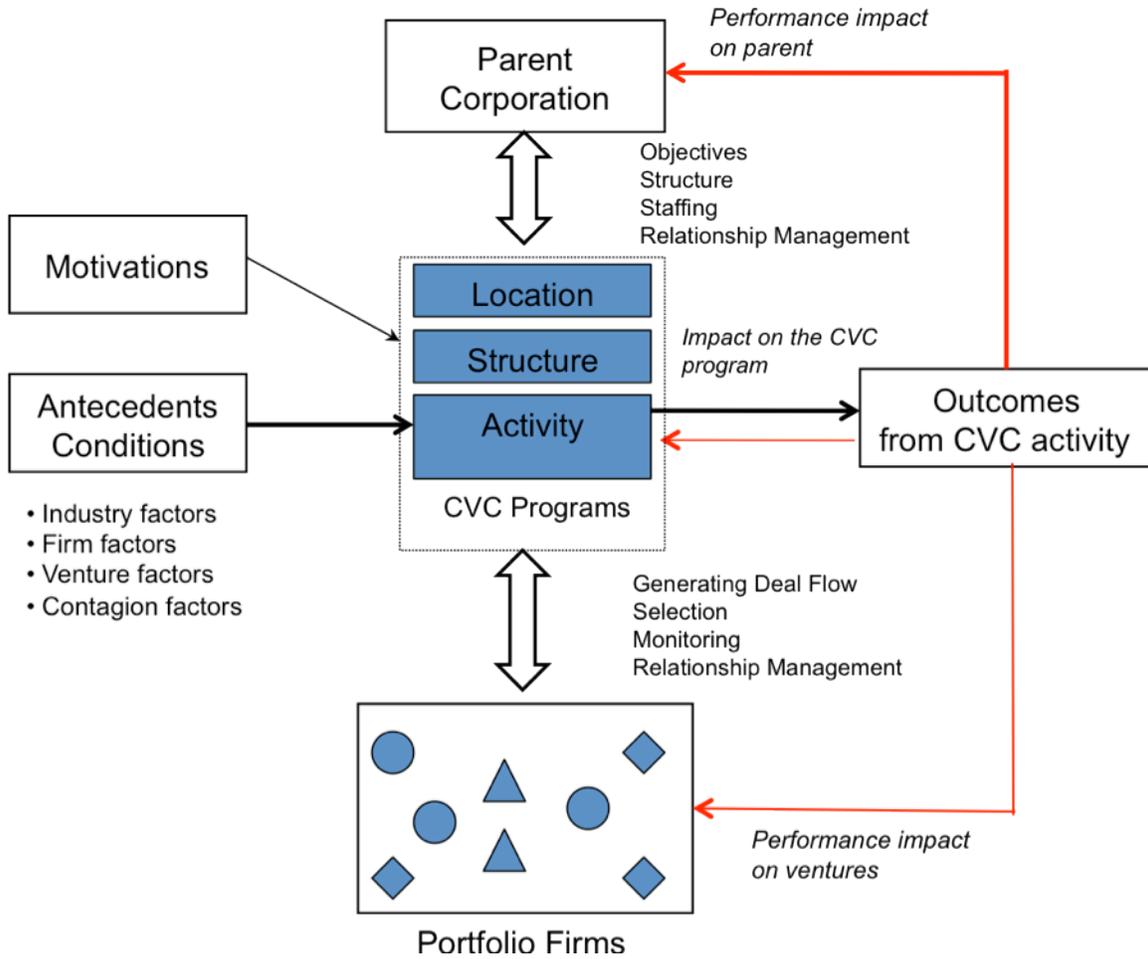


Table 2: Review of CVC Research from the Venture Perspective

Key Themes	Examples
A. Factors influencing acceptance of CVC investment	
<p><i>Perceived Benefits</i></p> <ul style="list-style-type: none"> - Financing - Tangible and intangible resources - Endorsement <p><i>Perceived Costs</i></p> <ul style="list-style-type: none"> - Misappropriation of IP - Undesirable exit <p><i>Access to CVC Investment</i></p>	<p>Chesbrough, 2002; Katila, Rosenberger, & Eisenhardt, 2008; Maula, 2001; Maula, Autio, & Murray, 2005; McNally, 1997;</p> <p>Basu, Phelps and Kotha, 2008; Dushnitsky & Shaver, 2009; Hellman 2002; Kann, 2000;</p> <p>Katila, Rosenberger, & Eisenhardt, 2008</p>
B. Outcomes achieved through receiving CVC	
<p>Knowledge transfer from corporate investor</p> <p>Growth and Profitability</p>	<p>Maula et al., 2009; Weber & Weber, 2007</p> <p>Gompers & Lerner, 1998; Weber & Weber, 2007</p>
C. Management of CVC Investments	
<p>Investor Selection</p> <p>Establishing Safeguards</p>	<p>Dushnitsky & Shaver, 2009; Gompers & Lerner, 1998; Kann, 2000; Keil et al, 2008; Maula, Autio, & Murray, 2009; Weber & Weber, 2007</p> <p>Maula et al., 2009; Weber & Weber, 2007</p>

**Figure 2: A Stylized Framework Summarizing the Extant CVC Literature
(From the Venture Perspective)**

