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Financing knowledge-intensive enterprises: evidence from CVCs in the US

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Abstract Since the 1990s, the importance of corporate venture capital (CVC) programs has grown around the world. CVCs are investments that established firms make in entrepreneurial companies. At the most basic level, CVC describes an equity investment made by a corporation or its investment entity in a high growth, high potential, privately held business. There is no systematic evidence that corporate venture capital investments create value for the investing firms. Firm value, however, can be created as a result of other benefits from investing (e.g., accessing a new technology). These considerations can explain why many firms currently choose to operate venture units: They have recognized the importance of CVC for strategic innovation in addition to its potential to generate financial returns. Some evidence from the US context described in this paper supports this intuition.

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1 Introduction to CVC and the presentation of the research

Corporate venture capital (CVC) is the term that is generally used to describe an extensive variety of forms of equity investment exercised by firms. Generally, CVC describes an equity investment made by a corporation or its investment entity in high growth and high potential firms. The range of models and systems deployed by these corporations is as diverse as the types of corporations themselves. Typically, CVC investments consist of minority equity stakes in relatively new firms that are seeking capital to continue operations (BVCA 2012). CVC has been recognized as an important vehicle for fostering entrepreneurial development (Rossi and Meglio 2013).

Indeed, CVC is not a simple financial activity, but it can be considered as a combination of strategic and financial operations. The strategic objectives include leveraging external sources of innovation, bringing new ideas and technologies into the company, and exercising "real options" on technologies and business models.

The other investment aim is financial, with a company looking for attractive returns. The investing firm seeks to do as well as or better than private VC investors due to what it sees as its superior knowledge of markets and technologies and its capability to act as a patient investor (Chesbrough 2002). In other words, there seem to be two main aims for corporate venturing: developing the strategic capabilities of the parent corporation or providing a source of financial returns for the venture capital corporation (BVCA 2012).

As studied by Chesbrough (2002), another classification of CVC investments concerns the degree to which the companies in an investment portfolio are linked to the investing firm's current operational capabilities.

It is possible to distinguish CVC activities that are *tightly linked* versus those that are *loosely linked*. The first option is characterized by strong links—in terms of resources and processes—between the corporate firm and the venture-backed firm. In this way, the venture-backed firm might make use of the CVC firm's technologies, manufacturing plants, and distribution channels, even though company resources and processes can sometimes become obstacles rather than capabilities.

The aim of the second option is to engage in CVC activities in new markets or to exploit disruptive technologies. An external venture may offer the investing company an opportunity to build new and different capabilities or categorizations that could threaten the viability of current corporate capabilities.

Combining the two dimensions (objective with correlation) of these operations, it is possible to define four different reasons to make CVC investments (cf. Table 1).

Driving CVC activities are characterized by a strategic rationale and tight links between the venture-backed firm and the operations of the investing company. This type of CVC operation can represent a powerful opportunity to share information, assess investment opportunities, and connect portfolio companies to the venture-backed firm.

Enabling CVC investments are activities in which a company makes investments primarily with strategic aims. A successful investment will support the entrepreneurial benefit, but a strong operational link between the venture-backed firm and the company is not

Table 1 A map of CVC investments. Adapted from Chesbrough (2002)

		Corporate investment objectives	
		Strategic	Financial
Link to operational capabilities	Tight	DRIVING Powerful	EMERGENT Growing
	Loose	ENABLING Qualifying	PASSIVE Inactive

necessary to realize this benefit. This type of CVC operation can be a qualifying opportunity because there is a complementarity between the CV capitalist and the venture-backed firm. A firm can take advantage of this notion by using its VC investments to stimulate the development of the ecosystem in which it operates (Carayannis and Campbell 2009; Carayannis et al. 2016) while also taking into due consideration the public approach to these opportunities (Audretsch and Link 2012).

Emergent CVC investments are primarily financial operations that have a certain level of strategic contact. In these activities, a firm makes an investment in another firm that has tight links to its operating capabilities but that offers little to enhance its current strategy. These investments can be considered growing operations because the immediate benefits, if any, of such investments are financial, and the ultimate return may result from exercising the strategic option. In that way, emergent investments complement the benefits of driving investments, which are designed only to further the company's current strategy (Chesbrough 2002).

Passive investments are characterized by a disconnect between the venture-backed firm and the corporation. Because of this disconnect, the operation can be defined as inactive because the corporation is just another investor subject to the vagaries of financial returns in the private equity market. According to Chesbrough (2002), this type of investing is a misuse of shareholders' money.

On these bases, we have developed a study to provide new insights into the CVC phenomenon with regard to technology innovation for the benefit of both scholars and executives engaged in planning and implementing venture capital activities. The paper is structured as follows: after this introduction, the next section presents an extensive literature review on CVC. In the second section, we define the research methodology and objectives. Subsequently, an analysis of the principal deals and strategies used by acquirers is conducted. Finally, we present the research conclusions and managerial implications.

2 Literature review

CVC is a consolidated praxis around the world that has received increasing attention from corporate investments teams. Since the 1990s, the attention of scholars to CVC has also grown (Narayanan et al. 2009). Rossi and Meglio (2013) identify at least three paths taken in previous studies: the relationship between CVC and financial performance, the impact of VC on the management of knowledge and innovation, and the relationship between CVC and strategies.

In examining the geographic areas covered by the empirical studies, there is a clear majority of papers focusing on North American countries. Papers focused on other countries are very few but appear to be increasing.

An important branch of these studies focuses on the financial aspects of CVC activities. Allen and Hevert (2007) analyze the financial returns and strategic benefits of venture capital investments in information technology companies. They evaluate the direct returns from the programs of U.S. IT companies during the 1990–2002 period and conclude that "Direct gains (losses) were widely dispersed and bi-modally distributed, based on IRR and net cash flow metrics. Timing of initiation within the venture capital cycle; program scale; and annual investment, write-down, and harvest behavior were associated with differences in returns" (Allen and Hevert 2007: 262).

Another important study is that conducted by Benson and Ziedonis (2009). They investigate an alternative means by which information gained through CVC can improve firm performance by increasing the returns to corporate investors when acquiring startups. The authors conduct an event study of the returns for 34 corporate investors from acquiring 242 technology startups. The results show that the effect of CVC investing on acquisition performance hinges critically on the strength of the acquirer's internal knowledge base. "CVC investments increase relative to an acquirer's total R&D expenditures, and acquisition performance improves at a diminishing rate. We also find that firms consistently engaged in venture financing earn greater returns when acquiring startups than do firms with more sporadic patterns of investing, even controlling for firm profitability, size, and acquisition experience" (Benson and Ziedonis 2009: 329).

Dushnitsky and Lenox (2006) use a panel of CVC investments and suggest that established firms face underlying challenges when investing in CVC. In particular, the structural deficiencies inherent in corporate venture capital may inhibit financial gains, but the authors find "that corporate venture capital investment will create greater firm value when firms explicitly pursue corporate venture capital to harness novel technology" (Dushnitsky and Lenox 2006: 753).

Park and Steensma (2012) pose the interesting question, "When does corporate venture capital add value for new ventures?", and they explore the conditions under which CVC funding is beneficial to new ventures. The study shows that CVC funding presents both advantages and disadvantages for new ventures. The authors explore the conditions under which CVC funding may be particularly beneficial to new ventures' performance. They conclude that "the tight relationship between new ventures and corporate investors is particularly beneficial in attaining specialized complementary assets. Such equity relationships can mitigate potential opportunistic behaviour between new ventures and the providers of specialized complementary assets. It appears that when new ventures require specialized complementary assets, the benefits of corporate investor ties outweigh the ability to access the open market. In contrast, we found that the benefits of CVC funding to new venture performance were relatively limited for those new ventures that merely required generic complementary assets, and the benefits of an equity tie with a corporate investor were minimal is such situations" (Park and Steensma 2012: 17).

Another important study is that conducted by Chemmanur et al. (2013). They analyze how corporate venture capital (CVC) differs from independent venture capital (IVC) in nurturing innovation in entrepreneurial firms (Hébert and Link 2006). They find three results: "First, CVC funds have a much longer investment horizon, which may be necessary for nurturing innovation processes that are very long. Second, while IVCs pursue purely financial returns, CVCs pursue both financial returns and strategic (non-financial) benefits for their corporate parent companies. Finally, CVC fund managers are

compensated through a fixed salary and corporate bonuses, and hence their compensation is not as sensitive to performance as IVC fund managers'. Taken together, these institutional features may allow CVCs to be more failure tolerant than IVCs" (Chemmanur et al. 2013: 33).

A second branch of studies focuses on the management of innovation. Wadhwa and Kotha (2006), using longitudinal data on 36 firms in the telecommunications equipment manufacturing industry during the period from 1989–1999, investigate the conditions under which CVC investments affect knowledge creation for corporate investors. The results indicate that there is an optimum point beyond which the contribution of CVC investments to investor knowledge creation declines. The results also suggest that when a corporate investor is highly involved with its portfolio firms, it may be possible to reverse this decline.

Dushnitsky and Lenox (2005) find that firms engage in CVC activities in industries with weak intellectual property protection, in industries with high technological ferment and where complementary distribution capability is important. They find that the level of a firm's cash flow combined with its absorptive capacity can make an investment likely (Dushnitsky and Lenox 2005).

Keil (2004) studies the important roles that initial conditions and knowledge management practices play in determining the direction and effectiveness of specific learning processes (see also Del Giudice et al. 2013). He aims to answer two questions: "Through what processes do firms develop new competencies? What factors govern processes of competence development?" In his study, he develops a model that explains the learning processes through which firms develop an external corporate venturing capability. The model describes how firms develop a capability to create and develop ventures through corporate venture capital, alliances, and acquisitions. In his model, external corporate venturing capability is the outcome of learning processes. Specifically, he identifies forms of learning-by-doing (Levitt and March 1988) and experiential learning (Huber 1991). However, the organization also learns outside such external corporate venturing relationships by relying, for instance, on new employees or consultants (Keil 2004).

Keil et al. (2008a, b) examine how firms gain cognizance of their future capability needs in situations characterized by high decision-making uncertainty. They develop a theoretical account of how firms use investments in start-ups to actively engage in experimentation outside the organizational boundaries, which is a learning process that can be called "disembodied experimentation" that, they argue, is a form of experimental learning whose aim is to understand action-outcome relationships. They find two factors that influence the relationship between disembodied experimentation and capability-building decisions: a knowledge-brokering role of strategy seems to be a critical positive moderator of the likelihood of internalization, and simultaneous changes in technology and business models determine adaptation complexity, which reduces the likelihood of disembodied experimentation affecting capability-building decisions.

Another branch of studies analyzes aspects that are linked by strategy. Again, Keil et al. (2008a, b) examine how different governance modes for external business development activities and venture relatedness affect a company's innovative performance. The results extend past studies by exploring how the relationship between various external business development activities and innovative performance depends on venture relatedness. Specifically, their study shows that alliances, joint ventures, and CVC investments in related industries have significantly positive correlations with innovative performance.

Other studies focus on CVC as a strategy for external innovation (e.g., Ernst et al. 2005). They investigate 21 corporate venture capital units of large corporations in

Germany to determine whether the respective CVC programs pursue the strategic objective of leveraging external innovation and whether these programs are managed accordingly. They find that the majority of German corporate venture programs follow mixed objectives and are not organized and managed as suggested in the literature. They conclude that a short-term focus on the financial objectives of these CVC programs prevents the achievement of long-term strategic benefits from external innovation. Actually, CVC programs seem to be too dependent on the corporate side. This is especially true for firms that receive their funds in the form of a yearly budget with no assurance that they will continue to exist in the next year (Ernst et al. 2005: 241).

Another important article is that developed by Engel (2011), who identifies ten leading strategies employed by venture capitalists and entrepreneurs to test new ideas and commercialize innovations quickly. They include Invest in Teams; Invest in Markets; Eliminate Pain; Focus On Customer Development, Not Product Development; Dedicate Resources in Stages; Fail Fast; Speed is Everything; Pour It On; Offer No Lifeboats; and Be Always Selling But Never For Sale. In the discussion section, Engel identifies three broad issues that deserve further attention: 1. The most disruptive innovations are a combination of technical and business model innovations; 2. many of the inputs of innovation management in the venture capital model rely on a market orientation and rapid-cycle innovations managed by superior teams; and 3. the venture capital model provides a garden of opportunity for partnerships, collaborations, and acquisitions.

Another important contribution is that developed by Napp and Minshall (2011). They present a paper based on nine in-depth case studies that analyze how to successfully implement a corporate venturing program and its challenges. Their findings support the idea that "successful CVC programs clearly define objectives, roles, and responsibilities and involve a wide range of business functions across hierarchies and business units in the corporate venturing process".

Waites and Dies (2006) study the strategic relationship between Hewlett-Packard Labs and the venture capital firm Foundation Capital. This relationship is built around the unique needs of a large corporate research organization and is not intended to replace or substitute the on-going relationships between HP's business organizations and the venture capital community. "The relationship has enabled both firms to understand more clearly the fundamental differences in their two different innovation models, and it is suggested that other large central research labs could benefit from a similar relationship. HP Labs, for instance, has become more selective about investments in promising new technologies, and has been able to propose more focused market entry strategies for several of its new technologies" (Waites and Dies 2006: 20).

How can a technology-savvy company better leverage the innovative ideas coming out of its laboratories? Chesbrough and Socolof (2002) analyze Lucent Technologies' New Ventures Group and show how Lucent blends venture capital and internal development models to speed the transition from the lab to the market. After a deep analysis of Lucent's activities, the authors underline both the challenges and the opportunities of using the Venture Capital model for these purposes. They claim that "the challenge is to balance the forces of the venture capital model with those of an internal corporate development model. The New Ventures Group's experience to date suggests that balancing these forces is difficult, but that there are rewards to the organization for doing so. These include the discovery of new sources of growth, the ability to leverage internal technology across multiple businesses, and the ability to stimulate cultural change within the organization" (Chesbrough and Socolof 2002: 13).

3 Research methodology, objectives, value, and limitations

Our study is primarily based on secondary data (NVCA 2016; BVCA 2015; BVCA, 2012) and describes some aspects of CVC, with a specific focus on the United States. The paper presents preliminary findings, and, because of the initial nature of the research, it is essentially descriptive.

The choice of a research methodology based on secondary data can be justified by the very particular singularity of CVC operations, which in most cases, if not always, face very high risks of strategic and/or financial failure, such that every CVC operation almost must be considered based on only its own specific characteristics. A general analysis of the phenomenon that could lead to a further scenario analysis can help to identify and refine some of the dynamics that may be ignored when analyzing single case studies or a possible sample of CVC operations in order to enable possible "interesting research" (Ramirez et al. 2015).

Thus, the theoretical foundation of this research has been built on a literature review, and secondary data have been used for the purpose of scenario analysis (as in Galant and Golja 2015) in order to describe and analyze some of the dynamics, trends, and attributes of CVC. The paper ultimately provides an overview of contemporary corporate venture capital phenomena, and its main topics of investigation are as follows:

(a) analyzing the dynamics, results and specificities of CVC, with a focus on the US;
(b) describing the emerging "waves" of CVC investments; and
(c) drawing some implications for financing knowledge-intensive enterprises.

In our opinion, this study offers a valuable theoretical basis for empirical development and practical application as well as a context of prescribed actions and processes. The limitations of the paper are a consequence of its very nature, i.e., the fact that it is a descriptive, secondary data-based study. Field investigations are therefore necessary to test the findings, to refine the contextual parameters involved and to prescribe target-specific action.

4 CVC operations: findings

To understand the current role positioning of corporate venture capital, it is important to study the most important stages since its appearance in the 1960s. Scholars define at least four waves of CVC (Dushnitsky 2012: 165): the seed (1960–1970), the consolidation (1980), the boom (1990–2000), and the rethinking (present).

4.1 The waves of CVC investments

The first wave was characterized by a mix of factors. BVCA (2012) defines three important elements:

- the opportunity to diversify rapidly growing firms;
- the need to exercise correspondingly strong balance sheets; and
- recognition of the success of the private venture capital model.

By that time, the primary manifestations of corporate activity surrounded external start-ups and employee-based internal ventures, with very few firms encouraging what we

would recognize as spinout businesses with financial and technical support from the parent. The first wave ended with the oil shocks of the 1970s and the collapse of the IPO market.

The second wave started in the 1980s and was focused on the biotech and IT sectors. This period included the development of the internet and biotechnology advances. It can be considered a period of consolidation that was brought to a close by the financial crash of 1987.

The start of the third wave of corporate venture capital investments took place in the 1990s. This period represented a new era of CVC because the focus was on internet-based firms: "A wide range of corporations piled in, with over 400 technology-focus venturing arms during this period creating levels of investment far in excess of anything seen in previous waves" (BVCA 2012: 5). The highest point of CVC investments with regard to the private venture capital market was in 2001, just before the technology crash of the biennium in 2001–2002 (cf. Figure 1).

The present wave of CVC investments is defined by a rethinking of this activity. In fact, in the previous waves, CVCs typically adopted standardized models and structures for their investment units. Today, top corporate venture capitalists typically adopt custom approaches to better suit their own corporate structures. This personalization means that venture teams are better aligned with their parent companies, thus reducing internal friction. In this new era of CVC investments, there is an equilibrium between strategic and financial goals. This revolution has delivered many benefits, with the top 50 global CVC units exhibiting impressive track records over a decade or more. The present period is considered to be the "breakthrough decade" because a combination of different factors is driving this new wave (cf. Figure 2).

The new wave is supported by a new consumer demand: environmentally conscious consumers are driving the R&D activities (and CVC operations) of the most important firms, such as L'Oréal, P&G, Danone and other important brands. Another important factor is the development of clean technologies—renewable energy, water, resource efficiency and smart grids—in order to reduce the reliance on natural resources. These new technologies have attracted CVC investments because they are long-term financial investments with a high potential for business integration. The affirmation of these new business models supports this CVC wave through the sharing economy, collaborative consumption and holistic value creation, which are important elements for sustaining social innovation and growing venture investments.

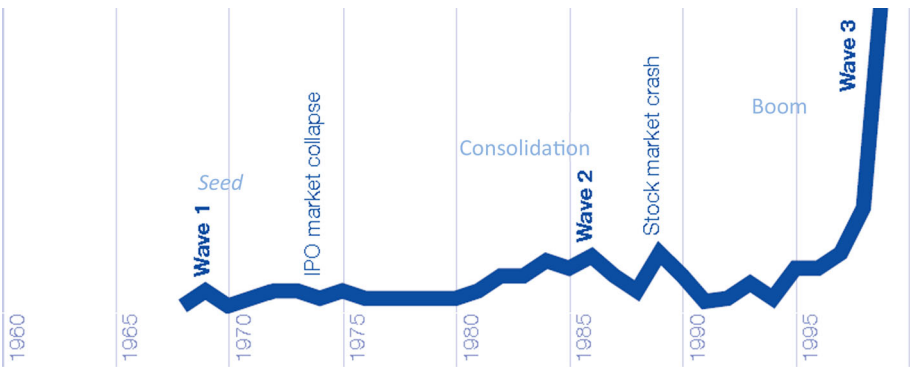

Fig. 1 The first three CVC waves—Volans and Global Corporate Venturing (2014)

Fig. 2 The last CVC wave—Volans and Global Corporate Venturing (2014)

4.2 From the boom wave to the rethinking wave: trends and the future for the US

In all developed countries, venture capital has permitted the support of entrepreneurial talent and has sustained basic science by turning ideas into innovative products and services. This is particularly true for the United States (US). Venture capital funds are used to build companies from the simplest form—perhaps a lone entrepreneur with an idea expressed as a business plan—to freestanding, mature organizations (NVCA 2016).

The US venture capital industry provides the capital to create and/or sustain some of the most innovative and successful firms. VC is not simply fundraising because venture capital partners become actively involved with a company, typically as strategic advisors. Many popular firms are venture backed: Apple, Google, Microsoft, Facebook, and AirBNB are only a few examples of venture-backed firms. (Table 2).

The support of VC firms has been important to these companies, so they—and others—are becoming corporate venture capitalists themselves (cf. Figure 2).

In 2013, Intel entered into approximately 150 deals and Google approximately 80 deals. Intel Capital is Intel's global investment arm that directs the company's external investments. Started in 1991, Intel Capital has invested over USD 11 billion in over 1340 companies in 55 countries around the world. Of these companies, more than 200 have gone

Table 2 Most active corporate venturers in 2013. Volans and Global Corporate Venturing (2014)

Organizations	Deals
Intel	146
Google	78
Qualcomm	69
SR One	32
Samsung	>30
IDG	29
SAP	24
AOL	24
Deutsche Telekom	23
GE	21

public, and over 340 have been acquired or participated in a merger. In 2013, Intel Capital invested USD 333 million in 146 investments, with approximately 49 percent of the funds invested outside North America.

Launched as Google Ventures in 2009, GV is the venture capital company of Alphabet, Inc. GV invested in more than 300 companies in the fields of life science-healthcare, artificial intelligence-robotics, transportation, cyber security, and agriculture.

Microsoft Venture is a global initiative to empower entrepreneurs to build new, innovative companies. The aim is to support start-ups in scaling their business, bringing innovative services to market, and reaching new customers.

As the data show, the CVC phenomenon is still emerging in the US, and CVC is a growing part of overall venture capital activities. As demonstrated in Fig. 3, after the period from 2000 to 2005, during which the level of CVC investments varied, over the last 10 years, CVC has grown as reflected by the number of deals. In 2010, the percentage of deals with CVC involvement was 12.8 % of total venture capital activities. By 2015, this percentage had grown to 21.9 %, and it was 23.5 % in the first quarter of 2016.

Corporate Venture Capital Group Investment by Value shows a similar trend. After a period during which the value of CVC investments varied, they have grown over the last 6 years (cf. Figure 4). In 2009, total CVC investments were 1374.9 million dollars, which represented 6.8 % of the total VC investments in dollars. In 2015, total CVC investments were 7763.8 million dollars (13 % of total VC investments), and in the first quarter of 2016, they represented 20.6 % of total VC investments.

The analysis of VC activity by sector (cf. Figures 5, 6) shows the predominance of the software sector for both VC (1811) and CVC (411). This sector represents the 41.8 % of the total CVC deals (by volume) and the 32.7 % of the total CVC deals (by value). This trend is confirmed for the first quarter of 2016: 40.4 % (by volume) and 49.7 % (by value).

Biotechnology is the second-ranked sector by both volume (14.6 %) and value (16.9 %). Other important sectors for CVC investments are: media and entertainment, IT services and industrial/energy.

The analysis of Corporate Venture Capital by Investment Stage shows an important result. Figure 7 shows that in 2015, approximately 68 % of CVC investments were made in the Expansion Stage and the Later Stage (cf. Figure 7). The "Expansion stage" refers to the state of a company characterized by a complete management team and a substantial increase in revenue. The "Later Stage" is the state of a company that has proven its concept, earned significant revenue compared to its competition, and approached break even cash flow or positive net income. Typically, a later stage company is approximately 6

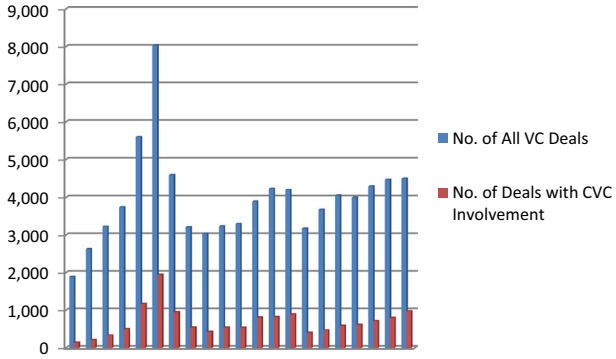

Fig. 3 corporate venture capital group investment by volume (1995–2015)—NVCA (2016)

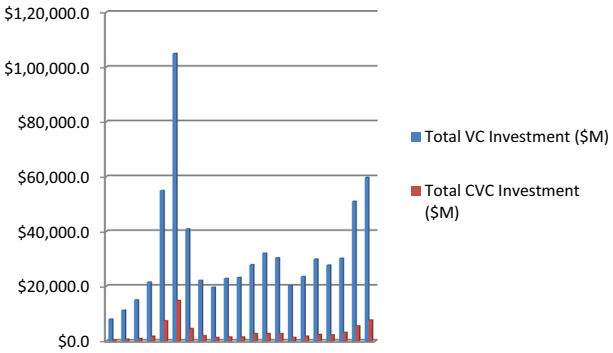

Fig. 4 Corporate venture capital group investment by value (1995–2015)—NVCA (2016)

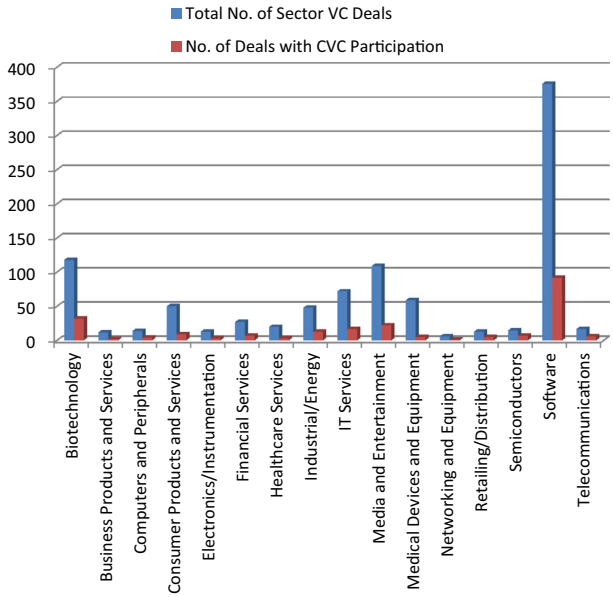

Fig. 5 Total venture capital and corporate venture capital by sector and volume (2015)—NVCA (2016)

to 12 months away from a liquidity event such as an IPO or buyout. The rate of return for venture capitalists who invest in later stage, less risky ventures is lower than that for earlier stage ventures, partially because the level of information asymmetry should be lower with respect to a liquidity event (Khemiri et al. 2011).

This position in the later stage permits a better definition of the real activity of CVCs: in the final stage of investment, firms have demonstrated a strong market presence and the capability to generate cash flow and profitability, and they have often begun to experiment with expanding into tangential markets with a well-known product. CVCs begin to search for sources of liquidity, thus leading late stage companies to position themselves for a liquidity event, usually in the form of an acquisition or initial public offering. Thus, CVC activity can be characterized by:

- a well-known product that has successfully penetrated its initial market,
- positive cash flow and the introduction of the product into tangential markets, and

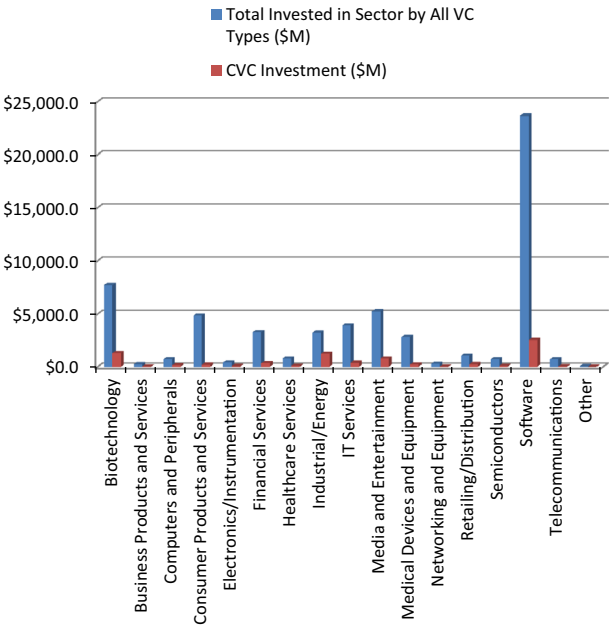

Fig. 6 Total venture capital and corporate venture capital by sector and value (2015)—NVCA (2016)

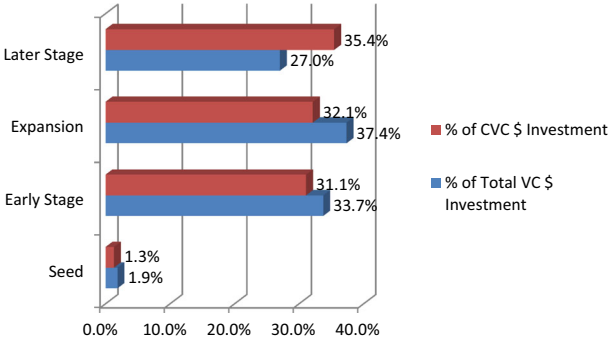

Fig. 7 Total venture capital and corporate venture capital by investment stage (2015)—NVCA (2016)

- the presence of investors who are seeking liquidity as the company begins to position itself for an acquisition or an initial public offering.

The presence of CVCs in the final stages of investment is growing: from 2014 to 2015, there was an increase from 64.4 % to 67.5 % (+3.1 % in one year).

These data show that corporations are increasingly engaging in a more meaningful way with start-up founders and the broader entrepreneurial ecosystem. Many corporations are choosing to launch venture units because they have recognized how important such units can be for strategic innovation, with important financial returns. Thus, the benefits accrue for both parent firms and startups.

5 Discussion of the results, implications, and limitations

CVCs fundamentally seem to make their investments in two ways:

1. as limited partner investors in independent venture capital funds; or
2. by making direct investments and taking a minority equity stake in companies.

In the first case, a CVC develops experience in venture investing, builds relationships in the venture capital community, and gains a perspective on the "deal flow" of technologies and companies seeking venture capital funding. Most corporate venture capitalists make direct investments, similar to independent venture capital funds. In other words, they exclusively pursue financial returns.

However, some CVCs make investments exclusively for strategic benefits, not for financial returns. Usually, a nonfinancial firm would not make a financial investment solely for a financial return—in effect, entering into the financial investment business—but a corporation with a strong industry position may find that its unique knowledge of the relevant markets and technology enables it to identify attractive opportunities to invest in smaller firms.

Most CVCs balance strategic objectives with financial objectives. For any individual investment, applying financial criteria in the decision-making process requires a level of financial discipline that helps to ensure the investment's quality.

Generally speaking, a large portion of CVCs are "driving activities" because they pursue strategic aims and tight links between themselves and the venture-backed firm. Identifying new technologies that can advance the businesses of the parent company appears to be the primary strategic objective for most CVCs.

Another important portion of CVC investments can be classified as "emerging investments". In most cases, these activities are primarily financial operations with a level of strategic contact. Many CVCs apply financial criteria in the decision-making process that require a level of financial discipline that helps to ensure the investment's quality. Some would argue that a "strategic investment" in a company that fails financially is not likely very strategic.

A very small portion of CVC investments can be classified as "enabling" or "passive" CVC investments. A few corporations use VC activities to develop ideas that are disconnected from the core competences of the corporation. However, it is difficult to use such investments to stimulate the development of the ecosystem in which the firm operates (including suppliers, customers, and developers).

The implications of the findings from this study at both scholarly and industry levels are significant. In particular, researchers should reconsider CVCs as investment operations based on management processes that continuously have to combine (or not) strategic and financial tools, thus continually re-evaluating their ultimate purpose. At the same time, practitioners are invited to very carefully consider the proposed frameworks of the different investigations (i.e., a combination of strategic and/or financial objectives and the "lifecycle" of the CVC waves) in order to make more thoughtful decisions with regard to CVC operations that almost always face high risks.

The main limitations of this research clearly concern the secondary nature of the data and the generic parameters of the CVC operations that were analyzed, which did not include a specific segmentation of the dimensions, sectors, corporate governance models, etc. Thus, this initial study is intended to be continued by using in-depth and contextually

strategic data to determine the proper utilization of CVCs for large and particularly for small firms, with the aim of adopting in a more rational and aim-specific perspective.

6 Conclusion

While an independent venture capital fund has a unique scope—to generate financial returns—a CVC typically has a combination of financial and strategic objectives. Generally, a CVC has a strategic mission to help to "grow the business" of the parent company.

Corporations seeking to innovate are highlighting open innovation (OI) models (Chesbrough 2006) that bring external ideas and technologies into the firm, starting from the concept that both the source of knowledge and the process of technology transfer are internal-external to the firm (Rossi, 2015). As part of an OI approach, CVC programs interact with the venture capital community and make investments in venture funds or firms. Through these interactions and investments, the corporations learn about and gain access to technologies and ideas that can reside, for example, in small firms, even abroad, with the consequent problems of cross-cultural knowledge management (Del Giudice et al. 2012).

In conclusion, CVC operations are not exclusively financial investments because CVCs use their investments in start-ups to support their own business, bring innovative services to market, and reach new customers. Typically, the most important CVCs combine both financial returns and strategic benefits, and the most important operations are emerging drivers because they are financial operations with a level of strategic contact in a correlated business.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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