How Transparent are Firms about their Corporate Venture Capital Investments?

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Abstract

We examine firms' corporate venture capital (CVC) investing activities from a voluntary disclosure and financial reporting perspective. CVC refers to minority equity investments made by established, publicly-traded firms in privately-held entrepreneurial ventures. We document that for a large majority of firms in our sample, there is little to no disclosure of the CVC investees and invested amounts. We find evidence that the lack of transparency is consistent with concerns about competition and associated with future acquisition frequency. We also examine the determinants and implications of CVC investing and find that firms with a CVC program, relative to firms without a CVC program, tend to treat CVC investing as a complement to internal R&D spending and a substitute for capital expenditures. Firms with a CVC program also tend to make more future acquisitions, report an increased number of product segments, experience higher revenue from acquisitions, but they do not tend to recognize more future goodwill impairments.

Keywords: Corporate venture capital, voluntary disclosure, acquisitions, financial reporting

JEL Classifications: M41, G11, G24, G32, G34

1. Introduction

We examine firms' corporate venture capital (CVC) investing activities from a voluntary disclosure and financial reporting perspective. CVC refers to minority equity investments made by established, publicly-traded firms in privately-held entrepreneurial ventures (Gompers and Lerner 2000). CVC investing differs from pure venture capital investing in that financial returns are not the primary consideration, but rather, strategic gains are often the driving motivation to invest. The investing firm gets access to new sources of innovation and potential acquisition targets, and the startup venture benefits from the established firm's capital, expertise, and connections (*The Economist* 2014). While established firms in the technology, industrial, and healthcare sectors such as Google, General Electric, and Johnson & Johnson have set up CVC subsidiaries to invest billions of dollars in startups, younger firms such as Twitter with relatively smaller cash balances are starting to do so as well (Koh 2015; Levy 2015).

However, critics note several potential drawbacks to CVC investing (Brooker 2015). There can be a conflict of interest regarding whether the CVC subsidiary's loyalty lies with the "parent" or startup.[1] Startups can be wary of incumbents seeking to gather intelligence to compete against them. Each time there is a market bust, many parent firms pull out of the CVC market, close the startups, and write off the investments. Notwithstanding these potential drawbacks, CVC investments in the U.S. were $18.7B in 2017, involving 847 deals that accounted for nearly one-fifth of overall venture capital deals, according to data from CB Insights. CVC investments are now at the highest levels since the dot com era. The motivating research questions we are interested in examining are: 1) how transparent are firms about their CVC investments, and 2) are firms successful with their strategic CVC investments?

[1] To avoid potential confusion, throughout this paper we consistently use the term "parent firm" to refer to the publicly-traded firm, the terms "CVC firm," "CVC subsidiary," and "CVC program" to refer to the CVC investing entity, and the terms "investee" and "startup" to refer to the firm that receives venture capital financing.

We operationalize our first research question by examining parent firms' voluntary disclosures about their CVC subsidiaries and investments, and we operationalize our second research question by examining whether having a CVC subsidiary is associated with future acquisition activity and its related financial reporting. We draw on theories of discretionary disclosure (Verrecchia 1983) to predict that the amount of transparency that firms provide about their CVC investing activities is related to concerns about competition. Empirically, we hand collect data on a comprehensive sample of 115 publicly-traded parent firms that owned 133 CVC firms between 1996 to 2017 to examine: 1) the initial decision to sponsor a CVC program, 2) variation in the amount of disclosures provided by parent firms that sponsor a CVC program, 3) the association between having a CVC subsidiary and future acquisition frequency, cash outflows, intangible assets, revenue contributions, goodwill impairments, and reported product segments, and 4) financial details of a subsample of acquisition targets that previously were investees in a CVC portfolio.

While CVC investing has been the subject of several studies in the management literature (Dushnitsky and Lenox 2005b; Basu, Phelps, and Kotha 2011), there has been little to no research on how CVC investing is related to the aforementioned constructs typically examined in the disclosure and accounting literature.[2] An important reason we focus on the CVC setting is that, unlike for all general minority equity investments made by firms, information about the deals such as the initial aggregate investment amounts, investee names, the number, timing, and participants of CVC financing deals are publicly available from venture capital data providers and our internet searches. To some extent, exit information is also available. This circumstance

[2] An exception is Mohamed and Schwienbacher (2016), who study a random sample of firms with press articles on Factiva about their CVC investments to test theories of voluntary disclosure and the market reactions. Our study differs in that we construct a larger sample using various sources, and we examine disclosures through press releases and SEC filings initiated by the investing firm. Moreover, the disclosure analysis is only one part of our study.

allows us examine a setting where we know CVC investments have occurred and can then observe firms' level of disclosure related to these investments, in contrast to other settings where one must rely on firm disclosures to know that investments have been made. This setting maps well to models of discretionary disclosure where the existence of information, but not its content, is common knowledge among market participants (Verrecchia 1983). Furthermore, as we discuss in the next section, full disclosure of CVC financing deals is rare, and the information is typically publicized by the startups and not directly by the parent firms. Therefore, we believe the sample of publicly-traded parent firms that have a separate CVC subsidiary to invest in privately-held startups provides an interesting setting where partial and indirect disclosure appears to be the norm. Moreover, CVC investing is a growing trend that has been underexplored in the literature due to, in our view, limited disclosure data that requires hand collection.

In our first analysis, we examine the determinants of firms having a CVC program. While prior studies in the management literature have examined primarily industry characteristics such as technology, competition, and intellectual property rights (Dushnitsky and Lenox 2005b; Basu, Phelps, and Kotha 2011), our focus is on firm characteristics related to their operating, investing, and financing activities, as well as their financial position. Using measures of firms' research and development (R&D) spending, capital expenditures, changes in external financing, and cash and short-term investment positions, we find that firms with higher R&D spending and lower capital expenditures are more likely to have a CVC program, compared to a group of control firms without a CVC program. Our results suggest that CVC investing is a complementary action to a firm's internal R&D program and a substitute for capital expenditures.

Next, we document that for more than half of the firm-years in our sample, the parent firms do not disclose any information about their CVC program. Surprisingly, despite thousands

of startups that announce receiving venture financing from the CVC subsidiaries of well-known, publicly-traded firms, most of those investing firms never mention the financing activities in their 10-K or 8-K filings with the Securities and Exchange Commission (SEC). Among the parent firms that do disclose their CVC activities, there is much time-series and cross-sectional variation in the amount and detail of disclosures (examples are provided in Section 3). We test for the determinants of firms' level of disclosure and find that firms disclose more information about their CVC activities when dedicated institutional ownership is lower, transient institutional ownership is higher, and industry competition is lower, consistent with theories of discretionary disclosure and prior studies on the factors that influence firms' voluntary disclosure decisions. Our results also suggest that firms are more forthcoming with information when the amounts invested in the CVC portfolio are higher, but not when the investments are made in ventures outside of the parent firm's core industry, which we infer is also related to concerns about competition.

In our third set of analyses, we examine whether having a CVC program is associated with future acquisitive behavior. The rationale is that if the goal of CVC investing is strategic gain, rather than pure financial returns, then one avenue for strategic gain is through future acquisitions. Even if future acquisitions are not of CVC investees specifically, an association would suggest that CVC investing may be one element of a firm's acquisition strategy. We find that relative to control firms without a CVC program, firms with a CVC program make a greater number of acquisitions over future three-year periods. Interestingly, the parent firms that make the most acquisitions are those that are more secretive about their CVC program. We do not find that these firms spend more cash outlays for acquisitions than control firms, but they do acquire more goodwill and intangible assets; this result suggests that many of the acquisitions are

financed with the acquirer's stock. This type of scenario can lead to potential impairment charges if the acquisitions manifest from a dysfunctional investment strategy using overpriced stock (Gu and Lev 2011), and therefore, we also test whether having a CVC program is related to proxies for future acquisition success and failure. We find that future sales contribution from acquisitions is higher for firms with a CVC program, while we do not find that they have higher future goodwill impairment charges. These results suggest that a parent firm having a CVC program tends to have more potential acquisition targets to consider, and among the acquisitions that are made, there is a higher likelihood for increased sales but not a higher likelihood for failure as measured by future asset write-downs.

Next, we analyze a subsample of acquisition targets that previously were investees in a CVC portfolio and later acquired by the parent firm. Our intent is to shed additional light on the voluntary disclosure and financial reporting implications by more closely examining the details of the initial CVC investment and subsequent acquisition. We find that, on average, the parent firm of the CVC subsidiary acquired the target two to three years after an initial CVC investment. However, disclosures of financial terms such as the purchase price are sparse. In the majority of cases, one cannot determine the amount of the initial CVC investment prior to the acquisition and also cannot infer that amount after the acquisition. Among the few cases where financial terms and financial reporting implications are disclosed, we find that 98 percent of the purchase price is allocated to goodwill, other intangibles, and in-process research and development, while 2 percent is allocated to net tangible assets. These findings suggest that most of the acquisitions involve only technology and employees, and they corroborate our previous result suggesting that having a CVC subsidiary is associated with future buildups in goodwill and intangibles.

Lastly, we examine whether firms with a CVC subsidiary tend to have more growth in the number of reported product segments relative to firms without a CVC subsidiary. The intuition is that if firms with CVC programs make more acquisitions and experience higher sales from acquisitions, then we would expect such firms' future financial reporting to include a greater number of product segments. We find results consistent with this prediction.

Our study's contribution is two-fold. First, we bring attention to the fact that despite billions of dollars of capital invested in early-stage startups by well-known, widely-held public firms, there is very little disclosure about these activities. For decades, corporate venture capital investing has generally been a veiled allocation of capital. Our findings are consistent with theories of discretionary disclosure that suggest firms withhold details of their venture capital activities for concerns about competition. However, even after firms announce an acquisition and reveal that the target firm had been a part of its CVC portfolio, most firms do not disclose financial terms, which prevents investors from fully assessing the financial and accounting implications of a firm's CVC program on an aggregate or individual deal level. A lack of disclosure may also suggest that CVC investments are less favorable than what shareholders of the investing firm would expect, which has been shown in prior studies on disclosures of business combinations (Shalev 2009). This evidence can inform regulators and standard-setters on whether firms should be more transparent in their corporate venture capital activities.

Second, our study contributes to the literature on corporate venture capital with a focus on future acquisitions and the related financial reporting implications. We show that firms with CVC programs, relative to control firms without CVC programs, are likely to make a greater number of future acquisitions and experience increases in revenue, reported product segments, goodwill, and intangible assets, while they are not more likely to write down goodwill. The

seemingly better acquisition outcomes for firms with a CVC subsidiary could be due to a learning effect or having a more diverse set of acquisition targets to consider and evaluate.

One caveat for our study is that many of the CVC investments and subsequent acquisitions may not be material to a large firm's results of operations, cash flows, or financial position, which would explain why there is little disclosure of CVC activities in general. If, however, only large CVC investments and acquisitions are fully disclosed, then we would not observe as much time-series and cross-sectional variation in the disclosure levels as we do in this study. Such a lack of variation would also work against our finding significant results in regressions tests. Furthermore, even if individual CVC investments are immaterial, aggregate amounts are not trivial to even the largest parent firms. Nonetheless, we recognize that in some cases, such as a large firm that invests in hundreds of startups over several years, full transparency may not be feasible.

The rest of this paper is organized as follows. Section 2 reviews the prior literature on corporate venture capital, Section 3 describes the data and sample construction, Section 4 discusses the determinants of sponsoring a CVC program, Section 5 discusses firms' disclosures of their CVC activities, Section 6 discusses future acquisitions and the financial reporting implications, and Section 7 concludes.

2. Background and Prior Literature

2.1 Institutional Background

Beyond a review of the CVC literature, which we provide later in this section, we interviewed an industry professional to better understand the current trends that are occurring in the CVC market. We interviewed a senior officer at a major financial institution who serves as the head of relationship management among parent firms, CVC firms, and startups. It is this

professional's opinion that corporations need to innovate, and they are looking for startups with technologies or operations that are "close to the core of one's own business" and have "product readiness." In some cases, there may be several startups with potential, and instead of acquiring or partnering with one of them, it makes more sense to invest in several of them to see which one succeeds. Another driver of the CVC market is that some corporations need to develop an entire ecosystem, and they will invest in many startups that help drive demand for their own products and platforms. There is competition and some secrecy among the parent firms, but the CVC investment arms are more open with each other in a close-knit professional and social community, which facilitates cross-parent firm deals. Another important benefit of having a separate CVC subsidiary, rather than a parent firm making direct investments, is that capital gets committed up front, which enables the investment professionals and startups to perform due diligence and negotiate terms in an autonomous manner. Autonomy also facilitates attracting outside VC talent and spur innovative thinking. The trend is that more parent firms, public and private, are starting new CVC funds. One anecdote mentioned is that "even Sesame Street has a VC fund now."[3]

2.2 Reporting Requirements

Under U.S. GAAP, firms (that are not investment firms) report minority equity investments in other publicly-traded firms at fair value and typically classify them as available-for-sale securities (prior to 2018).[4] For equity investments in privately-held startups, the carrying amounts are reported at adjusted cost and typically listed under other assets. When the equity

[3] Sesame Street is produced by Sesame Workshop, which is a nonprofit educational organization. More information about its venture capital fund is available online at: http://www.sesameworkshop.org/sesame-ventures/.

[4] We assume the incentives to make minority investments in publicly-traded debt and equity securities is to either earn a return above the risk-free rate, preserve excess capital for future corporate purposes, or both. Since these incentives are different from the incentives to invest in securities of privately-held startups, which relate to innovation, strategy, and growth, we expect disclosure incentives to differ as well. In this paper, we do not examine disclosures of investments in public securities.

investment accounts for 20 to 50 percent of ownership of a startup and the firm has the ability to exercise significant influence, a firm should use the equity method of accounting. In the CVC setting, virtually all of the investments are in privately-held startups accounting for less than 20 percent of ownership.[5] Furthermore, in the situation where a firm creates a separate venture capital subsidiary or partners with a venture capital firm to invest in privately-held startups, the disclosure and reporting requirements are less clear.[6] Firms generally report realized and unrealized gains and losses based on changes in estimated fair values of "other investments," but little to no other details are provided. Thus, the types of CVC investments and the names of individual investees remain largely unreported by the parent firms.

2.3 Prior Literature on Corporate Venture Capital

Prior studies in the management literature have examined the determinants of public firms' incentives to pursue CVC activities. Dushnitsky and Lenox (2005b) find that firms with CVC subsidiaries invest in industries with weak intellectual property protections, high technology ferment, and where complimentary distribution capability is important. Extending this line of research, Basu, Phelps, and Kotha (2011) focus on the incumbent's industry and resources, and they find that incumbents in industries with rapid technological change, high competitive intensity, and weak appropriability (i.e., ability to protect knowledge from spilling over to competitors) induce firms to pursue CVC.

The management literature has also examined some consequences of CVC activities, with a focus on strategic and innovative outcomes. Gompers and Lerner (2000) find that CVC

[5] We found only two cases (out of 5,515 CVC investees during our sample period) where a parent firm accounted for a CVC investee using the equity method.

[6] The SEC mandates that registrants (i.e., firms) disclose significant subsidiaries, generally defined as accounting for at least 10 percent of a registrant's total assets, in Exhibit 21 of a 10-K filing. For our sample, 43 out of 115 (37 percent) registrants list a corporate venture capital subsidiary in Exhibit 21 at least once during our sample period. However, one cannot determine if the other 72 registrants do not disclose a CVC subsidiary because it is a subsidiary accounting for less than 10 percent of total assets or it is not a subsidiary of the registrant.

investments are more successful when there is strategic overlap between the investing and investee firms, while Dushnitsky and Lenox (2005a) find that increases in CVC investments are associated with subsequent increases in company patenting. Other studies examine stock market reactions to CVC investments and investigate reasons for variation in returns. Dushnitsky and Lenox (2006) find that CVC investments create shareholder value (as measured with Tobin's q) when the explicit goal of the investment is to harness novel technology. Benson and Ziedonis (2009) examine returns of CVC acquisitions in startups using an event study, and they find that as CVC investments become a larger part of overall R&D, acquisition performances improves at a diminishing rate. Their results suggest firms that lack strong internal R&D are not as astute in their CVC investments.

Beyond the aforementioned studies that utilize limited samples, we are not aware of any prior studies that have probed deeper into how CVC investments interact with a firm's traditional R&D expenditures, either acting as substitutes, complements, or both. There is also a lack of research examining firms' voluntary disclosure decisions regarding how much information (if any) they provide to the capital markets about their CVC activities and the implications of these activities for firms' financial reporting. We believe one possible reason for the lack of prior research in these areas is data limitations, as much of the information must be hand collected. We combine the available data sources and construct a comprehensive sample of firms with a CVC program and conduct a thorough analysis of the determinants, voluntary disclosure choices, and financial reporting implications of CVC investment activities.

2.4 Theory on Disclosure

Models of full disclosure suggest that firm managers will choose to disclose all relevant private information to investors because withholding information will be inferred adversely to

the point where firm value will always be higher after disclosure (Grossman and Hart 1980; Grossman 1981). An important assumption of the models is that investors (all outsiders) are aware that managers have relevant private information at the time of the decision to disclose or withhold. Dye (1985) and Jung and Kwon (1988) show that when investors are uncertain as to whether managers have information, nondisclosure can be due to there being no information or adverse information, which leads to a partial disclosure equilibrium. Verrecchia (1983) considers an alternative reason for partial disclosure in that there can be a cost of disclosure such that its revelation will lower firm value. Such a scenario can be when a firm is put at a competitive disadvantage if it discloses proprietary information to all outsiders including competitors, which leads to the cost being referred to as a proprietary cost.[7]

In the CVC setting, we argue that investors are aware that managers of parent firms have relevant private information and that it is proprietary in nature, which leads to partial and discretionary disclosure as analyzed in Verrecchia (1983). In terms of the market's awareness of the existence of information, we (and investors) know from our data collection process (discussed in the next section) that certain parent firms have a CVC subsidiary and that it is investing in strategic ventures because it is mentioned in venture capital financing deals publicized by the startups through industry trade publications, company press releases, websites, and social media.[8] In contrast, for most other disclosure settings, such as announcements of new products, customers, and technologies, there can be market uncertainty prior to the disclosure as to whether the new information exists. In terms of its nature, information about strategic

[7] Empirically, the evidence on the effect of the proprietary cost on firms' disclosure decisions has been ample but somewhat mixed due to various empirical challenges from measurement issues to endogeneity problems (Berger 2011). While most studies focus on earnings related disclosure (e.g. management forecasts), Ellis, Fee, and Thomas (2012) and Li, Lin, and Zhang (2018) examine firms' discretionary disclosure of major customer lists, noting that the setting mitigates the concern that investors are not aware of the existence of proprietary information.

[8] For example, Symic Bio, an investee of Ely Lilly's CVC subsidiary, used its Twitter account (@symicbio) to retweet an industry reporter's tweet: https://twitter.com/megkesh/status/671768249017634816, which included a link to a press article on the funding from Lilly Ventures https://medcitynews.com/2015/12/eli-lilly-symic/.

investments is proprietary because it provides insight into which new technologies and markets parent firms are developing or targeting.

Furthermore, since the information about the CVC deals is usually publicized by the startups, the information can be viewed as a form of indirect disclosure by the parent firms. However, full disclosure of the strategic intent and financial terms by each venture capital investor is rare. Rather, an aggregate round of financing dollars contributed by multiple investors is all that is typically disclosed. Thus, the conflicting interests of parent firms to withhold information about their CVC investments and of startups to publicize their high-profile investors create an interesting setting to examine indirect and partial disclosure of proprietary information. Equally interesting is the variation in the amount of information that parent firms disclose and the communications channels that they use to disseminate the information, such as SEC filings, press releases, social media, or none.[9] In Section 5, we draw on Verrecchia (1983) to test the prediction that the extent of disclosure of CVC activities is negatively associated with proxies for industry competition and proprietary costs.

3. Data and Sample

We collect the names of corporate venture capital entities that invest in early-stage firms (i.e., "Corporate Venture Capital (CVC) firms") from three sources: CB Insights, Crunchbase, and Factiva. CB Insights and Crunchbase are each data aggregators and providers of venture capital financing deals (and other capital market events). Factiva is an information news provider owned by Dow Jones and Company. Using these three sources, we collect the names of 350 distinct CVC firms spanning the years 1996 to 2017. However, since our focus is on CVC firms

[9] Given the many dissemination channels that parent, CVC, and startup firms can use, there does not appear to be one standard practice. Rather, it appears that CVC-related information is disclosed in a piecemeal nature, rather than in a strategic manner (Jung, Naughton, Tahoun, and Wang 2018).

owned (or sponsored) by publicly-traded U.S. corporations, we exclude entities owned by private or foreign corporations. We also exclude entities whose parent is a financial firm, as these entities resemble pure venture capital firms rather than corporate venture capital firms. After these exclusions, we are left with 133 unique CVC firms.

For each CVC firm, we confirm the name of the parent firm using the above data sources, CVC firm websites, and our own internet searches. We then manually read the parent firm's 10-K filings spanning the relevant fiscal years to collect information disclosures about the investment activities of the CVC firm. We use keyword search terms such as "venture capital," "startup," "privately-held," "investments," or the proper name of the CVC firm. After reviewing all of the filings, we find that, surprisingly, many parent firms do not disclose any information about their CVC activities (summarized later in this section). For parent firms that do disclose their CVC activities, we find disclosures in various parts of the 10-K, including in Items 1, 2, 4, 5, 6, 7, 10, 13, and the footnotes. We also manually read the parent firm's 8-K filings to gather more details (if available) about the investment activities. We discover that some distinct CVC firms are owned by a common parent firm. For example, the automaker Ford owns two venture capital entities: Ford Smart Mobility and Ford Venture Capital Group. Also, some CVC firms are affiliated with multiple parent firms, such as Energy Technology Ventures being affiliated with General Electric, NRG Energy, and ConocoPhillips. After reviewing all of the filings, we find that the 133 CVC firms in our sample are owned or sponsored by 115 unique publicly-traded U.S. corporations. A full list of the CVC firms and parent firms is included in Appendix A.

Since most of the parent firms have had their CVC subsidiary for multiple years, we construct a panel dataset consisting of 945 CVC-year observations in our final sample.[10] The

[10] The 945 CVC-year sample used for descriptive statistics is reduced to 883 firm-year observations used in regression tests because several CVC firms share a common parent firm.

sample includes parent firms from 29 different industries based on two-digit SICs. Table 1, Panel A shows that the largest number of CVC firms and startups are in the Business Services, Electronic, Chemical, Communications, and Industrial Machinery industries. Table 1, Panel B shows that the sample spans the years 2000 to 2017 fairly evenly, with fewer observations in the years 1996 to 1999. The number of startups receiving CVC funding each year has generally increased during the sample period.

In reviewing the filings of the parent firms, we find that there is much cross-sectional and time-series variation in the quality and quantity of disclosures about the investment activities of the CVC subsidiary. To illustrate, we describe two examples below. The first is for Adobe Systems, a software developer, and the second example is for Baxter International, a medical devices and healthcare firm.

3.1 Adobe Systems Example

In its 10-K filing dated February 21, 1997, Adobe Systems discloses in Item 1 (Business description):

> *In 1994, Adobe invested in a venture capital limited partnership that is chartered to invest in innovative companies strategic to its software business. Adobe Ventures LP ("AVLP") enables the Company to join other investors in making new products and services available to computer users and in building new market opportunities. Adobe has thus invested in new markets, and intends to continue investing in new markets, both through the limited partnership as well as direct investments by the Company.*

This level of disclosure is similar for the next several years, until the firm describes in its 10-K filing dated February 16, 2000 its investment in new markets:

> *We own a majority interest in three venture capital limited partnerships, Adobe Ventures L.P.; Adobe Ventures II, L.P.; and Adobe Ventures III, L.P., that invest in early stage companies with innovative technologies. These companies may create new market opportunities for us or enhance our existing business…*

…In March 1997, as part of our venture investing program, we established an internal limited partnership, Adobe Incentive Partners, L.P. ("AIP"), which allows certain of the Company's executive officers to participate in cash or stock distributions from Adobe's venture investments…

….Our portfolio of equity investments, including those held by AIP on December 3, 1999, had a cost basis of $114.2 million and a recorded fair market value of $205.4 million. In fiscal 1999, AIP recorded net income of $96.4 million. Gross proceeds from the sale of equity securities during fiscal 1999 were $63.9 million. Our equity investments and Adobe Ventures L.P.; Adobe Ventures II L.P.; and Adobe Ventures III, L.P.'s investments in equity securities at December 3, 1999 consisted of the following companies:

	Private	Public
Adobe Ventures L.P. Equity Investments		
Cascade Systems International	X	
Cogito Learning Media, Inc.	X	
DigitalThink, Inc.	X	
Electronic Submission Publishing Systems, Inc.		X
Extensis Corporation	X	
FileNet Corporation		X
Managing Editor Software, Inc.	X	
Adobe Ventures II, L.P. Equity Investments		
2Way Corporation	X	
AvantGo, Inc.	X	
Cascade Systems International	X	
Cogito Learning Media, Inc.	X	
Digital Intelligence, Inc.	X	
DigitalThink, Inc.	X	
Extensis Corporation	X	
Glyphica	X	
HAHT Software, Inc.	X	
Salon.com		X
Virage, Inc.	X	
Adobe Ventures III, L.P. Equity Investments		
2Way Corporation		X
Cascade Systems International	X	
Digital Fountain	X	
DigitalThink, Inc.	X	
Glyphica	X	
Impresse Corporation	X	
Virtualis Systems, Inc.	X	

The firm continues to disclose the individual investees for the next several years, and then adds disclosures about capital commitment amounts in its 10-K filing dated February 21, 2002 in Item 7 (Management's Discussion and Analysis) as follows:

> *We have commitments to the Adobe Venture limited partnerships. The following table shows the capital commitments and the capital contributed as of November 30, 2001:*

	Capital Commitment	Capital Contributed
Adobe Ventures L.P.	$ 40,000,000	$ 40,475,757
Adobe Ventures II, L.P.	$ 40,000,000	$ 36,947,363
Adobe Ventures III, L.P.	$ 60,000,000	$ 56,162,222
Adobe Ventures IV, L.P.	$ 100,000,000	$ 18,292,333

However, disclosures of capital commitment amounts cease in the 2004 10-K filing and disclosures of individual investees cease in the 2006 10-K filing. Finally, in the 10-K filing dated January 27, 2011, the firm states:

> *Included in investments are our indirect investments through our limited partnership interest in Adobe Ventures of approximately $37.1 million as of November 27, 2009. Our limited partnership interest in Adobe Ventures terminated on September 30, 2010 and no additional investments were made. As of December 3, 2010, our investment balance was zero.*

The example with Adobe Systems suggests that as a parent firm's corporate venture capital activities increase in size and scope, the amount of disclosures and level of detail also increase. However, as the following example illustrates, this may not be a general conclusion that can be made for all parent firms.

3.2 Baxter International Example

In its 10-K filing dated February 23, 2012, Baxter International discloses in Item 1 its research and development activities:

> *Baxter supplements its own R&D efforts by acquiring various technologies and entering into development and other collaboration agreements with third parties. In July 2011, Baxter established Baxter Ventures, a strategic initiative to invest up to $200 million in early-stage companies developing products and therapies to accelerate innovation and growth for the company.*

Two years later, in its 10-K filing dated February 21, 2014, the firm reveals:

> *Through December 31, 2013, over 25% of Baxter Ventures' funds have been invested, including in such therapeutic areas as immunology, hematology and renal.*

However, in the following year's 10-K filing, the firm ceases to disclose the percentage level of invested capital, and in the subsequent 10-K filing, there is no longer any mention of Baxter Ventures, even though the CVC firm continues to exist.[11]

3.3 Descriptive Findings of CVC Disclosure Levels

Given the variation in CVC disclosures among our sample firms, we summarize our findings in this subsection. First, we find that for approximately 55 percent of our sample firm-years, there are no disclosures at all regarding CVC activities. That is, despite the existence of a CVC entity from the CB Insights, Crunchbase, or Factiva data sources, the parent firm does not mention the CVC entity in any 10-K or 8-K filing. For the other 45 percent of firm-years, disclosures in the 10-K are most often made in the footnotes (29 percent of sample firm-years), Item 7 management's discussion and analysis (28 percent), and Item 1 business description (22 percent). Disclosures are also made about CVC investments in company press releases included in 8-K filings, parent firm websites, or CVC subsidiary websites for 24 percent of the firm-years.

The types of disclosures about CVC investment activities include discussion of specific portfolio investees, potential fund commitments, actual committed amounts, and investment horizons. However, we find that these types of specific disclosures are rare, as most parent firms only provide qualitative descriptions of their CVC subsidiaries. Within our sample, specific investees are mentioned in 4 percent of the cases, potential and actual fund commitments amounts are mentioned in 8 percent of the cases, and investment horizons are mentioned in 2

[11] As of December 2017, Baxter International continues to describe Baxter Ventures on its corporate website: http://www.baxter.com/inside-baxter/science/programs/baxter-ventures.page

percent of the cases. Using the three aforementioned data sources, we estimate that our sample of 133 unique CVC firms invested in over 5,515 startups over a 20-year span. However, only a small fraction of the investees are ever mentioned by the parent firms themselves. Later in this paper, in Section 5, we examine factors that may explain the variation in disclosure levels.

4. Determinants of Sponsoring a CVC Firm

In this section we examine the determinants of parent firms owning or sponsoring a CVC program. Prior studies in the management literature have examined primarily industry characteristics such as technology, competition, and intellectual property rights (Dushnitsky and Lenox 2005b; Basu, Phelps, and Kotha. 2011). These studies have also examined some firm-specific factors such as research and development (R&D) spending and cash flow generation, however, other firm-specific factors have been largely unexplored.

To conduct an analysis of firm-specific determinants of firms' decision to sponsor a CVC program, we test firm characteristics related to their operating, investing, and financing activities, as well as their financial position. We focus on factors related to R&D spending, capital expenditures, changes in external financing, and cash and short-term investment positions. To form a control group, we match each parent firm that has a CVC subsidiary to another firm in the same year and two-digit SIC industry, and of similar size (closest in market value of equity), that does not have a CVC subsidiary.[12] We estimate a probit regression using the following specification.

$$CVC\_Indicator_{i,t} = \beta_0 + \beta_1 R\&D\_Spending_{i,t-1} + \beta_2 Capex\_Inv_{i,t-1} + \beta_3 Ext\_Financing_{i,t-1} + \beta_4 Cash\_Position_{i,t-1} + \beta_5 Size_{i,t-1} + \beta_6 Book\text{-}to\text{-}market_{i,t-1} + \beta_7 Leverage_{i,t-1} + \beta_8 Growth_{i,t-1} + \beta_9 Profitability_{i,t-1} +$$

[12] Despite our best efforts, it is possible that a control firm may have a CVC subsidiary that is not disclosed to the public and not included in data from CB Insights and Crunchbase. Although we believe that such a possibly is remote, such firms included in our control sample should work against our ability to detect a difference in firm-specific characteristics between parent firms that have and do not have a CVC subsidiary.

$$\beta_{10}Loss\_Firm_{i,t-1} + Year\ and\ Industry\ Fixed\ Effects + \epsilon_{i,t} \quad (1)$$

$CVC\_Indicator_{i,t}$ is an indicator variable set to 1 (0 otherwise) if parent firm *i* has a CVC program in fiscal year *t.* The variables of interest are *R&D_Spending,* defined as R&D expense scaled by total revenue, *Capex_Inv,* defined as capital expenditures scaled by total revenue, *Ext_Financing,* defined as the net change in cash from equity and debt financing activities, scaled by average total assets, and *Cash_Position,* defined as cash and short-term investments scaled by total assets. Each variable is measured for fiscal year *t-1* to test how firm characteristics from the prior year are associated with the presence of a CVC program in the current year. Research and development spending and capital expenditures are clearly vital to the success and growth of technology firms, yet it is unclear *ex ante* whether CVC investments serve as complements or substitutes for firms' internal R&D spending and capital expenditures. Therefore, we do not make predictions about the signs of these variables' coefficients (β_1 and β_2). However, we do expect that firms with less need for external financing (i.e., firms with positive internally-generated cash flows) and firms with larger cash and short-term investment positions to be more likely to have the capital resources to sponsor a CVC program. Accordingly, we predict β_3 to be negative and β_4 to be positive ($\beta_3<0$ and $\beta_4>0$).

We include several control variables in the regression: *Size* is the natural log of market value of equity, *Book-to-market* is total stockholders' equity scaled by market value of equity, *Leverage* is total debt scaled by total assets, *Growth* is the rate of change of annual total revenue, *Profitability* is income before extraordinary items scaled by average total assets, and *Loss_Firm* is an indicator variable set to 1 (0 otherwise) if prior year's income before extraordinary items is negative. We also include year and industry (two-digit SIC) fixed effects to control for time

trends and time-invariant industry characteristics. All variable definitions are summarized in Appendix B, and all continuous variables are winsorized at the 1st and 99th percentiles.

Table 2, Panel A shows descriptive statistics of the variables used in regression equation (1). The full sample consists of 883 parent firm-years and 1,766 firm-years including the control group. The mean *R&D_Spending* and *Capex_Inv* is 7.1 percent and 7.6 percent of revenue, respectively. The mean change in external financing (*Ext_Financing*) is −3.2 percent of average total assets and the mean *Cash_Position* is 18.4 percent of total assets. Panel B presents the mean and median values of the variables partitioned by whether a firm has a CVC subsidiary, as well as tests for differences based on two-sided *t*-tests for means and Wilcoxon signed-rank tests for medians. Firms with a CVC subsidiary (*CVC_Indicator=1*) have higher mean and median *R&D_Spending* and *Cash_Position* than firms without a CVC subsidiary (*CVC_Indicator=0*), while the differences for *Capex_Inv* and *Ext_Financing* are mixed or not significant. Panel C presents pairwise correlations between the variables. *CVC_Indicator* is positively correlated with *R&D_Spending*, *Capex_Inv,* and *Cash_Position.* Only three pairs of variables have both Pearson and Spearman correlations above |0.40|: *R&D_Spending* and *Cash_Position*, *Leverage* and *Cash_Position,* and *Profitability* and *Loss_Firm*.

Table 2, Panel D presents the results of estimating regression equation (1), where standard errors are two-way clustered by firm and year. Tests of significance are based on one-tailed tests when there is a directional prediction and two-tailed tests otherwise. The coefficient for *R&D_Spending* is positive and significant at the 1 percent level; the coefficient of 4.202 indicates that an interquartile shift in the value of *R&D_Spending* (from 0.000 to 0.130) leads to an increase in the probability of having a CVC program by 16 percent. The coefficient for *Capex_Inv* is negative and significant at the 10 percent level; the coefficient of −1.584 indicates

that an interquartile shift in the value of *Capex_Inv* (from 0.023 to 0.084) leads to a decrease in the probability of having a CVC program by 2.4 percent. In contrast, the coefficients for *Ext_Financing* and *Cash_Position* are not significant. Among the control variables, *Growth* is significantly negative, indicating that slower growth firms tend to sponsor CVC firms. Overall, the results for the variables of interest suggest that a parent firm's sponsoring of a CVC program is a complementary action to its internal R&D program and a substitute for its capital expenditures.

5. Variation in CVC Disclosure Levels

In this section we examine factors that may explain the variation in the amount of CVC-related disclosures made by firms, conditional on having a CVC program. For example, while some firms do not disclose any information about their CVC program in any of their 10-K and 8-K filings, other firms disclose a moderate amount of information in some years and an extensive amount in other years. To conduct our within-sample analysis, we create a disclosure score that captures the different types of disclosures that a firm can make about its CVC program. We recognize that researcher-created indexes can be arbitrary, however, our readings of thousands of 10-K and 8-K filings lead us to believe that the quantity and quality of disclosures related to a CVC program and its investment activities vary greatly and should be measured on a spectrum. In fact, we create two different indexes. First, *Disc_Score* is a count variable with a possible value from 0 to 6 (lowest to highest), with firm *i* receiving a score of 6 in fiscal year *t* if it discloses each of the following: 1) a general description of its CVC program, 2) a list of its CVC portfolio investees, 3) an Exhibit 21 to its 10-K that includes its CVC subsidiary, 4) total expected fund commitment amounts, 5) total actual committed amounts to date, and 6) time

horizon of prior CVC investments. A firm that does not disclose any of this information receives a disclosure score of zero. Examples of how we code *Disc_Score* are shown in Appendix C.

Second, we create a location score that captures the number of places that an investor can find information about a firm's CVC activities. The intent is to proxy for the ease and quantity of CVC-related disclosures that an investor can retrieve from the filings and other locations. *Loc_Score* is a count variable with a possible value from 0 to 6 (lowest to highest), with firm *i* receiving a score of 6 in year *t* if it discloses CVC-related information in each of the following locations: 1) Item 1 of the 10-K (Business Description), 2) Item 7 of the 10-K (Management's Discussion and Analysis), 3) Footnotes of the 10-K, 4) other locations of the 10-K (Items 2, 4, 5, 6, 10, and 13), 5) 8-K filing, and 6) corporate website.[13] A firm that does not disclose any CVC-related information in any of these locations receives a location score of zero. We believe *Loc_Score* and *Disc_Score* each proxy for firms' varying levels of disclosure, while also capturing different aspects of disclosure.

Next, we run an OLS regression where the dependent variables are *Disc_Score* and *Loc_Score*, and the independent variables include those that have been shown in prior studies to influence firms' voluntary disclosure decisions. We also run an ordered logistic regression to account for the possibility that an increase in score from 0 to 1 corresponds to a greater increase than, say, from 2 to 3 or from 4 to 5. Given that 10-K filings for fiscal year *t* become available in year *t+1*, and thus, the disclosure and location measures are revealed in year *t+1*, we measure the independent variables for year *t*. We estimate the following regression equation:

$$\begin{aligned} Disc\ or\ Loc\_Score_{i,t} = {} & \beta_0 + \beta_1 Num\_Analysts_{i,t} + \beta_2 Dedicated_{i,t} + \beta_3 Quasi\text{-}Indexers_{i,t} + \\ & \beta_4 Transients_{i,t} + \beta_5 Competition_{i,t} + \beta_6 Num\_Investees_{i,t} + \\ & \beta_7 Invested\_Amt_{i,t} + \beta_8 Outside\_Industries_{i,t} + \end{aligned}$$

[13] Corporate websites include those where a parent firm's website has a dedicated section for its CVC subsidiary and those directly hosted by the CVC subsidiary. We find that among the 133 CVC firms in our sample, 35 have their own website, 52 have a dedicated section on the parent firm's website, and 46 have neither.

$$\beta_9 Size_{i,t} + \beta_{10} Book\text{-}to\text{-}market_{i,t} + \beta_{11} Leverage_{i,t} + \beta_{12} Growth_{i,t} + \beta_{13} Profitability_{i,t} + \beta_{14} Loss\_Firm_{i,t} + Year\ and\ Industry\ Fixed\ Effects + \epsilon_{i,t} \quad (2)$$

To proxy for analyst coverage, we define $Num\_Analysts_{i,t}$ as the natural log of one plus the latest number of analysts who issued an EPS forecast for firm *i*'s current fiscal year *t*, based on data from the I/B/E/S summary file. Prior studies (e.g., Lang and Lundholm 1993) show that firms with higher analyst coverage tend to have higher levels of disclosure, thus, we expect a positive coefficient ($\beta_1>0$). To capture the influence of different types of institutional investors, we include the percentage of total common shares outstanding owned by dedicated, quasi-indexer, and transient institutional investors, as defined in Bushee (1998). Using data from the Thomson Reuters database of Form 13F filings and Brian Bushee's website,[14] we define $Dedicated_{i,t}$, $Quasi\text{-}Indexers_{i,t}$, *and* $Transients_{i,t}$ as the percentage ownership by each type of institutional investor in firm *i* as of the end of December of the current fiscal year *t*. Prior studies find that a firm's level of public disclosure is generally negatively associated with ownership by dedicated institutional investors and positively associated with ownership by quasi-indexer and transient investors (Bushee and Noe 2000; Boone and White 2015). Dedicated investors hold concentrated, long-term positions in firms, and thus, they tend to have more access to management and private information, which lessens their reliance on public disclosures. Quasi-indexers are also long-term investors but hold diversified, passive investments, and they prefer firms with higher transparency to lower information asymmetries and monitoring costs. Transient investors have diversified holdings but trade frequently on public news events and firm disclosures in an effort to earn short-term trading profits. Accordingly, we expect a negative coefficient for *Dedicated* ($\beta_2<0$) and a positive coefficient for *Quasi-Indexers* ($\beta_3>0$) and *Transients* ($\beta_4>0$).

[14] http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html

As previously discussed, industry competition can be negatively associated with firms' discretionary disclosure decisions (Verrecchia 1983). To test this prediction in the CVC setting, we include a variant of the Herfindahl-Hirschman Index (HHI), which measures industry concentration. We measure HHI as the sum of the squares of the sales market shares of the ten largest firms within the same two-digit SIC industry.[15] We define *Competition* as one minus HHI, where a *Competition* value close to 1 (0) indicates high (low) competition, and we expect a negative coefficient (β_5<0).

In addition, we include three variables that capture characteristics of a firm's CVC activities which, as illustrated by the Adobe Systems and Baxter International examples, may be associated with the disclosure of such activities. Using CVC portfolio-level data from CB Insights and Crunchbase, we define $Num\_Investees_{i,t}$ as the natural log of one plus the number of investees that parent firm *i* has invested through its CVC program in year *t*. Similarly, *Invested_Amt* is the natural log of one plus the total amount of investments (in millions) made by firm *i* through its CVC program during fiscal year *t*. If no investments were made in a given year, then both variables are set to zero. We expect that as the size and scope of a parent firm's CVC activities increase, so do the amount of disclosures of such activities. Therefore, we expect positive coefficients for *Num_Investees* and *Invested_Amt* (β_6>0 and β_7>0). To capture the extent to which a parent firm invests in startups outside of its core business and industry, we manually categorize each investee into a two-digit SIC and compare that with the parent firm's two-digit SIC. We base our categorizations on the business and industry descriptions provided by each startup or one of the data providers, which we acknowledge can be subjective and difficult to

[15] Using *all* firms within the same two-digit SIC industry to compute HHI results in values close to zero for nearly all industries. Therefore, to capture a more realistic level of competition faced by firms within the same industry and to have more variation in the measure, we compute HHI using only the 10 largest (by annual sales) firms in the industry.

delineate between closely-related industries. Nonetheless, with that caveat in mind, we define $Outside\_Industries_{i,t}$ as the percentage of investees in a CVC's portfolio that are in a different two-digit SIC than parent firm *i* in year *t*. Values close to 1 indicate that almost all of the investees are in different industries than the parent firm's industry, and values close to 0 indicate almost all investees are in the same industry as the parent firm. We posit that information about a firm's new and early-stage strategic investments in outside industries is proprietary in nature because its revelation can alert competitors of the parent firm's strategy for future markets and spur competing firms to make similar strategic investments. We expect parent firms would be less inclined to disclose details of such investments, and thus, we predict a negative coefficient for *Outside_Industries* ($\beta_8<0$). Finally, we include all the control variables from regression equation (1), as prior studies show that firms' voluntary disclosure decisions are associated with firm size, growth, leverage, and profitability (Lang and Lundholm 1993; Frankel, Johnson, and Skinner 1999; Francis, Nanda, and Olsson 2008).

Table 2, Panel A shows descriptive statistics of the variables used in regression equation (2). The mean values of *Disc_Score* and *Loc_Score* are 0.806 and 1.598, respectively, and the maximum value of each variable is 5 (although the maximum possible value is 6). The average firm is covered by 20 analysts and has 5.0 percent, 39.9 percent, and 10.9 percent of its shares outstanding owned by dedicated, quasi-indexer, and transient institutional investors, respectively. The mean value of *Competition* is 0.861, indicating a relatively high level of competition for our sample firms. The average CVC invests in 6.0 startups with total investment of $26.1 million per year, and about 62 percent of the investees are in different industries as the parent firm.

Table 3 presents the results of estimating regression equation (2). Tests of significance are based on one-tailed tests when there is a directional prediction and two-tailed tests otherwise.

Column (1) shows the OLS results when the dependent variable is *Disc_Score.* Among the variables that proxy for analyst coverage and institutional ownership, the coefficients for *Num_Analysts* and *Quasi-Indexers* are insignificant, while the coefficients for *Dedicated* and *Transients* are significant in the predicted direction. The coefficient of −2.191 for *Dedicated* indicates that an interquartile shift in dedicated institutional investor ownership (from 0 to 0.076) is associated with a 0.167 decrease in *Disc_Score,* which is 21 percent of the mean value of 0.806. Similarly, the coefficient of 1.789 for *Transients* indicates that an interquartile shift in transient investor ownership (from 0.055 to 0.149) is associated with a 0.168 increase in *Disc_Score,* which is 21 percent of the mean value of 0.806. Also as predicted, the coefficient for *Competition* is negative and significant; an interquartile shift in the value of *Competition* is associated with a 0.136 decrease in *Disc_Score,* which is 17 percent of the mean value. Among the CVC portfolio-level variables, the coefficient for *Num_Investees* is insignificant, the coefficient for *Invested_Amt* is significantly positive as predicted, and the coefficient for *Outside_Industries* is significantly negative as predicted. The results when the dependent variable is *Loc_Score*, shown in Column (2), are comparable, except that the coefficients for *Num_Analysts*, *Quasi-Indexers,* and *Num_Investees* are significantly positive as predicted and the coefficients for *Competition* and *Invested_Amt* are insignificant. The results of the ordered logistic regression in Column (3) are similar to those in Column (1), and the results in Column (4) are similar to those in Column (2), except that the coefficient for *Num_Analysts* is insignificant.

Overall, the results in Table 3 with two different measures of disclosure suggest that firms disclose more information about their CVC activities when dedicated institutional ownership is lower, transient institutional ownership is higher, and industry competition is lower,

consistent with prior studies on the factors that influence firms' voluntary disclosure decisions. The results also suggest that firms are more forthcoming with information when the amounts invested in the CVC portfolio are higher (consistent with materiality thresholds), but not when the investments are made in ventures outside of the parent firm's core industry. We interpret the latter result as consistent with firms revealing less about ventures into new industries for concerns about competition.

6. Future Implications of Having a CVC Program

6.1 CVC and Future Acquisitions, Sales Contributions, and Impairments

In this section we examine future acquisition and financial reporting implications associated with prior period CVC investment activities. First, we test for associations with proxies for acquisitive behavior—future number of acquisitions, cash outflows for acquisitions, and accumulation of goodwill and intangible assets. The rationale is that if the goal of CVC investing is for strategic gain, rather than pure financial returns, then one avenue for strategic gain is future acquisitions of innovative technologies. Even if future acquisitions are not of CVC investees specifically, an association would suggest that CVC investing may be one element of a firm's acquisition strategy. Second, we test for associations with proxies for acquisition successes and failures. Including the same set of control firms (that do not have a CVC program) from Section 4, we estimate the following regression equations:

$$\begin{aligned} Acq\_Behavior_{i,x} = {} & \beta_0 + \beta_1 CVC\_Indicator_{i,t} + \beta_2 Acq\_Behavior_{i,t} + \\ & \beta_3 Size_{i,t} + \beta_4 Book\text{-}to\text{-}market_{i,t} + \beta_5 Leverage_{i,t} + \\ & \beta_6 Growth_{i,t} + \beta_7 Profitability_{i,t} + \beta_8 Loss\_Firm_{i,t} + \\ & Year \text{ and } Industry \text{ } Fixed \text{ } Effects + \epsilon_{i,t} \end{aligned} \quad (3)$$

$$\begin{aligned} Sales\_Contri\_Acq_{i,x} = {} & \beta_0 + \beta_1 CVC\_Indicator_{i,t} + \beta_2 Sales\_Contri\_Acq_{i,t} + \\ & \beta_3 Size_{i,t} + \beta_4 Book\text{-}to\text{-}market_{i,t} + \beta_5 Leverage_{i,t} + \\ & \beta_6 Growth_{i,t} + \beta_7 Profitability_{i,t} + \beta_8 Loss\_Firm_{i,t} + \\ & Year \text{ and } Industry \text{ } Fixed \text{ } Effects + \epsilon_{i,t} \end{aligned} \quad (4)$$

$$GW\_Impairments_{i,x} = \beta_0 + \beta_1 CVC\_Indicator_{i,t} + \beta_2 GW\_Impairments_{i,t} + \beta_3 Size_{i,t} + \beta_4 Book\text{-}to\text{-}market_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Profitability_{i,t} + \beta_8 Loss\_Firm_{i,t} + Year\ and\ Industry\ Fixed\ Effects + \epsilon_{i,t} \quad (5)$$

$Acq\_Behavior_{i,x}$ in equation (3) represents $Acq\_Num_{i,x}$, $Acq\_Cash_{i,x}$, and $Acq\_GW\&Intan_{i,x}$. $Acq\_Num_{i,x}$ is the natural log of one plus the total number of acquisitions made by firm *i* during time period *x*, where *x* represents a three-year period from fiscal years *t+1* to *t+3* or *t+2* to *t+4*. We sum over two different three-year periods because we are interested in examining general acquisition decisions over a medium- and long-term basis rather than immediate acquisitions of CVC investees in a specific year. We collect data on domestic and international acquisitions from the Thomson Reuters Securities Data Company (SDC) database. Similarly, *Acq_Cash* is the sum of cash outflows used for acquisitions and *Acq_GW&Intan* is the sum of acquired goodwill and intangible assets, both measured for the aforementioned future three-year periods and scaled by total revenue for current fiscal year *t*. We regress each dependent variable on $CVC\_Indicator_{i,t}$, an indicator variable set to 1 (0 otherwise) if firm *i* had a CVC program in year *t*, as well as the control variables included in equation (1). We also include as an additional control variable the current fiscal year *t* measure of the number of acquisitions (Acq_Num_t), cash outflows for acquisitions (Acq_Cash_t), and acquired goodwill and intangible assets ($Acq\_GW\&Intan_t$) in the respective regression specifications. If a firm having a CVC program is associated with future acquisitive behavior, then the coefficient for *CVC_Indicator* should be positive ($\beta_1 > 0$).

To examine whether future acquisitions (if any) are successful (from the accounting and financial reporting perspective), we use as the dependent variable in equation (4) $Sales\_Contri\_Acq_{i,x}$, defined as the sum of sales contribution from acquisitions for firm *i* during time period *x*, where *x* represents a three-year period from fiscal years *t+1* to *t+3* or *t+2* to *t+4*,

scaled by total revenue for current fiscal year *t*. Likewise, to examine whether future acquisitions might be considered failures, we test for an association with future goodwill impairment charges, which highlight past acquisition mistakes and overpayment (Gu and Lev 2011; Li, Shroff, Venkataraman, and Zhang 2011). In equation (5), $GW\_Impairments_{i,x}$ is the sum of goodwill impairments for firm *i* during time period *x*, where *x* represents a three-year period from fiscal years *t+1* to *t+3* or *t+2* to *t+4*, scaled by total revenue for current fiscal year *t*. Considering that a greater number of acquisitions increases the likelihood of both successful and unsuccessful outcomes, we expect the coefficient for *CVC_Indicator* to be positive ($\beta_1>0$) in both equations (4) and (5).

Descriptive statistics of the variables used in regression equations (3) through (5) are presented in Table 2, Panel A. For brevity, we present statistics of the aforementioned variables measured for current fiscal year *t*. The mean number of acquisitions is 2.9 per year, and the mean value for cash outflow for acquisitions and acquired goodwill and intangibles is 4.4 percent and 2.6 percent of total revenue, respectively. Also, the mean value of sales contribution from acquisitions and goodwill impairments is 1.5 percent and 1.3 percent of revenue, respectively.

Table 4, Panel A presents the results of estimating regression equation (3). When the dependent variable is the number of future acquisitions (*Acq_Num*) for either the *t+1* to *t+3* period (column 1) or the *t+2* to *t+4* period (column 2), the coefficient for *CVC_Indicator* is positive and significant at the 1 percent level. This result indicates that parent firms with CVC programs make more future acquisitions than control firms without CVC programs, after controlling for current year acquisitions. When the dependent variable is future cash outflow for acquisitions (*Acq_Cash*) for either period (columns 3 and 4), the coefficient for *CVC_Indicator* is positive but insignificant. Thus, while parent firms with CVC programs tend to make more

future acquisitions than firms without CVC programs, either the size of the acquisitions tend to be small or the acquisitions tend to be financed with the acquirer's stock, such that there is no detectable difference in future acquisition-related cash outflows between both groups of firms. To help distinguish between the two possibilities, columns (5) and (6) present the results of when the dependent variable is future acquired goodwill and intangible assets (*Acq_GW&Intan*). The coefficient for *CVC_Indicator* is positive and significant at the 10 percent level, indicating that firms with CVC programs have a greater buildup in goodwill and intangible assets in future years than firms without CVC programs. This latter result suggests that the acquisitions tend to be financed with the acquirer's stock. Overall, the results in Table 4, Panel A provide evidence that parent firms that own a CVC program tend to make more future acquisitions and acquisitions financed through stock than control firm without CVC programs.

Panel B presents the results of estimating regression equations (4) and (5). The coefficient for *CVC_Indicator* is positive and significant at the 10 percent level when the dependent variable is *Sales_Contri_Acq* in columns (1) and (2), indicating that parent firms with CVC programs experience higher future sales from prior acquisitions than control firms without CVC programs. When the dependent variable is *GW_Impairments* in columns (3) and (4), the coefficient for *CVC_Indicator* is negative and insignificant, indicating that firms with CVC programs are not more likely to have goodwill impairments than control firms. Taken together, the results in Panels A and B suggest that a parent firm having a CVC program tends to have more potential acquisition targets to consider, and among the acquisitions that are made, there is a higher likelihood for increased sales but not a higher likelihood for failure as measured by future asset write-downs. The result may also suggest that firms with a CVC program learn over time how to make better acquisition decisions.

6.2 CVC Disclosure and Future Acquisitions

Given the rather strong results in Table 4, Panel A (Columns 1 and 2) that parent firms with a CVC subsidiary tend to make a higher number of future acquisitions than firms without a CVC subsidiary, we test whether the results are stronger or weaker for parent firms that provide higher levels of disclosures about their CVC program. The purpose is to examine if parent firms' transparency (or lack thereof) about their CVC program is associated with future acquisition strategy. We rerun regression equation (3) with *Acq_Num* as the dependent variable on subsamples partitioned by the median value of *Disc_Score*.[16] Because the median value is zero, low disclosure parent firms have zero *Disc_Score* and high disclosure firms have above-zero *Disc_Score.* Control firms (without a CVC subsidiary) are placed in the same partition as their matched treatment firm. The results are presented in Table 5. For the time period *t+1* to *t+3* (Columns 1 and 2), the coefficient for *CVC_Indicator* is significantly positive only for the low disclosure subsample, and a Chi-Squared test for a difference in the coefficients (0.241 vs. 0.107) is significant at the 10 percent level. For the time period *t+2* to *t+4* (Columns 3 and 4), the results are similar and the difference in coefficients (0.281 vs. 0.133) is significant also at the 10 percent level. These results indicate that parent firms that are less transparent about their CVC subsidiary and investment activities tend to make a greater number of acquisitions than parent firms that are more transparent about their CVC program. One possible explanation is that a parent firm's secrecy about its current CVC activities is related to not wanting to reveal its future areas of acquisitions or specific targets.

6.3 Acquisition Subsample Analysis

In this subsection we examine a subsample of acquisitions of firms that previously were investees in a CVC portfolio. Our intent is to more closely examine the financial details of the

[16] Results are similar but weaker statistically when we partition by the median value of *Loc_Score*.

initial CVC investment and subsequent acquisition to shed additional light on the disclosure and financial reporting implications. First, using the intersection of the SDC, CB Insights, and Crunchbase databases, we identify 42 acquisitions of firms that were prior CVC investees. Second, we retrieve the original press release issued by the acquiring or target firm that announced the deal. Third, we read through the relevant 10-K, 10-Q, and 8-K filings of the acquiring firm for the periods involving the acquisitions for details of the accounting treatments.[17] We find that, on average, the parent firm of the CVC subsidiary acquired the target two to three years after an initial CVC investment.

Regarding the disclosure of financial terms of an acquisition, in only 20 cases (48 percent) is the purchase price disclosed in the press release, SEC filing, or both. Conversely, in 22 cases (52 percent), financial terms of the deal are not disclosed in the initial announcement (see Appendix D for an example) or the SEC filing. These results are consistent with our previous finding (in Section 3.3) that in 55 percent of our sample firm-years, a parent firm sponsoring a CVC program does not disclose any information about the CVC investments. Thus, in the majority of cases, one cannot determine the amount of the initial CVC investment prior to the acquisition and also cannot infer that amount after the acquisition.

Among the 15 cases where purchase price allocation information is provided in SEC filings, we find that 76 percent of the purchase price is allocated to goodwill, 10 percent is allocated to other intangibles, 12 percent is allocated to in-process research and development, and 2 percent is allocated to net tangible assets. These results are consistent with our previous result suggesting CVC investments are associated with future buildups in goodwill and

[17] For this analysis, we also read 10-Q filings for the fiscal quarter in which the acquisition occurs just in case there are disclosures above and beyond what's in the 10-K filings. We find, however, for general information disclosures related to parent firms' CVC subsidiaries and their individual investments, 10-K filings by far have more information than the comparable 10-Q filings.

intangibles. Overall, given that the sample size is small, we caution that our findings are descriptive and intended to provide additional granularity to the results about disclosures and financial reporting implications provided in prior sections.

6.4 CVC and Future Reported Product Segments

In our final set of analyses, we examine whether parent firms with a CVC subsidiary tend to have more growth in the number of reported product segments relative to firms without a CVC subsidiary. Our prior analyses indicate that firms with a CVC subsidiary tend to make more acquisitions and experience higher sales from acquisitions, and therefore, we would expect that such firms' future financial reporting should include an increase in the number of product segments. To test this prediction, we use data from Compustat's Historical Segments Product file to define $Num\_Prod\_Segments_{i,t}$ as the number of reported product segments for firm *i* in year *t,* and $Chg\_Prod\_Segments_{i,t+1,t+3}$ as the change in that number year *t+1* to *t+3*. We regress that change variable on an indicator for whether firm *i* has a CVC subsidiary in year *t* ($CVC\_Indicator_{i,t}$) and control variables that include the number of product segments in year *t* ($Num\_Prod\_Segments_{i,t}$) and fixed effects for year and industry.

Panel A of Table 2 shows that the median number of reported product segments is 4, and the first and third quartile are 1 and 8, respectively. Table 6 presents the results of the regression. Column (1) shows the results when the dependent variable is measured from year *t+1* to *t+3*, and column (2) shows the results when the measurement is from year *t+2* to *t+4*. In both columns, the coefficient for *CVC_Indicator* is significantly positive at the 1 percent level, after controlling for firm size and the current number of reported segments. In robustness checks (not tabled), the results hold using alternative specifications of the dependent variable including the logged change in the number of reported segments and the change in logged number of reported

segments, as well as controlling for the change in the number of reported segments from the prior year to the current year. We find consistent results that indicate firms with a CVC subsidiary tend to experience a greater increase in the number of reported product segments in future years than firms without a CVC subsidiary.

7. Conclusion

In this paper, we examine firms' corporate venture capital investment activities from a voluntary disclosure and financial reporting perspective. Using hand-collected data on a comprehensive sample of firms that own or sponsor a CVC program, we examine the determinants of having a CVC program, the disclosures of CVC investment activities, and the acquisition and financial reporting implications. We find that a parent firm's sponsoring of a CVC program is a complementary action to a firm's internal R&D program and a substitute for capital expenditures. But disclosures about the CVC programs are sparse, with general qualitative discussions in some cases, limited quantitative data in other cases, and non-existent in many cases. Firms tend to be more forthcoming with information when the amounts invested in the CVC portfolio are higher, but not when the investments are made in ventures outside of the parent firm's core industry. Our findings are consistent with theories of discretionary disclosure that suggest firms withhold details of their corporate venture capital activities for concerns about competition and not wanting to reveal their future areas of acquisitions or specific targets. However, even after firms announce an acquisition and reveal that the target firm had been a part of its CVC portfolio, most firms do not disclose financial terms, which prevents investors from fully assessing the financial and accounting implications of a firm's CVC program on an aggregate or individual deal level. This evidence can inform regulators and standard-setters on whether firms should be more transparent in their corporate venture capital activities.

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Appendix A: List of CVC Firms and Parent Firms

Corporate Venture Capital Firm	Parent Firm(s)
3Com Ventures	3Com Corporation
3D Systems Ventures	3D Systems Corporation
3M New Ventures	3M Company
Abbott Biotech Ventures	Abbott Laboratories
AbbVie Biotech Ventures	AbbVie Inc.
Accenture Technology Ventures	Accenture plc
ADC Ventures	ADC Telecommunications, Inc.
Adobe Ventures	Adobe Systems Incorporated
AMD Ventures	Advanced Micro Devices, Inc.
Agilent Ventures	Agilent Technologies, Inc.
Altria Ventures	Altria Group, Inc.
Amazon Alexa Fund	Amazon.com, Inc.
AMC Networks Ventures	AMC Networks Inc.
Amgen Ventures	Amgen Inc.
AOL Ventures	AOL Inc.
Apollo Education Ventures	Apollo Education Group, Inc.
Applied Ventures	Applied Materials, Inc.
AT&T Intellectual Property	AT&T Inc.
AT&T Ventures	AT&T Inc.
Autodesk Ventures	Autodesk, Inc.
Autodesk Spark Innovation Fund	Autodesk, Inc.
Autodesk Forge Fund	Autodesk, Inc.
Baxter Ventures	Baxter International Inc.
BD Respiratory Solutions Business	Becton, Dickinson and Company
BD Ventures	Becton, Dickinson and Company
Best Buy Capital	Best Buy Co., Inc.
Biogen Idec New Ventures	Biogen Inc.
Boeing Ventures	The Boeing Company
Boeing HorizonX	The Boeing Company
Boulder Brands Investment Group	Boulder Brands, Inc.
Novell Cambridge Technology Capital (JT)	Cambridge Technology Partners & Novell, Inc.
Caterpillar Ventures	Caterpillar Inc.
Cerner Health Ventures (Cerner Capital)	Cerner Corporation
Chesapeake NG Ventures	Chesapeake Energy Corporation
Chevron Technology Ventures	Chevron Corporation
Cisco Investments	Cisco Systems, Inc.
Comcast Interactive Capital	Comcast Corporation
Comcast Ventures	Comcast Corporation
Comdisco Ventures	Comdisco Holding Company, Inc.
Compuware Ventures	Compuware Corporation
ComSor	Comverse Technology, Inc.
Energy Technology Ventures(JT)	ConocoPhillips, General Electric, & NRG Energy
ConocoPhillips Technology Ventures	ConocoPhillips
Constellation Ventures	Constellation Brands, Inc.

Appendix A: List of CVC Firms and Parent Firms (Continued)

Corporate Venture Capital Firm	Parent Firm(s)
Cornerstone Innovation Fund	Cornerstone OnDemand, Inc.
Covidien Ventures	Covidien Public Limited Company
Dell Ventures (Dell Technologies Capital)	Dell Inc.
Dow Venture Capital	The Dow Chemical Company
DuPont Ventures	E. I. du Pont de Nemours and Company
DuPont Capital Management	E. I. du Pont de Nemours and Company
Eastman Ventures	Eastman Chemical Company
EMC Ventures	EMC Corporation
Exelon Capital Partners	Exelon Corporation
Constellation Technology Ventures	Exelon Corporation
First Data Ventures	First Data Corporation
Ford Venture Capital Group	Ford Motor Company
Ford Smart Mobility	Ford Motor Company
GE Ventures	General Electric Company
GE Digital	General Electric Company
301 INC	General Mills, Inc.
GM Ventures	General Motors Company
Genzyme Ventures	Genzyme Corporation
Google Ventures	Alphabet Inc. (Google Inc.)
CapitalG	Alphabet Inc. (Google Inc.)
GXP Investments	Great Plains Energy Incorporated
H.B. Fuller Ventures	H.B. Fuller Company
Hearst Ventures	Hearst-Argyle Television, Inc.
Honeywell Ventures	Honeywell International Inc.
Health Insight Capital	HCA Holdings, Inc.
Hewlett-Packard Ventures	HP Inc.
Humana Ventures	Humana Inc.
IBM Watson Group	International Business Machines Corporation
IBM Ventures	International Business Machines Corporation
Illumina Ventures	Illumina, Inc.
Intel Capital	Intel Corporation
R/GA Ventures	The Interpublic Group of Companies, Inc.
iRobot Ventures	iRobot Corporation
JetBlue Technology Ventures	JetBlue Airways Corporation
Johnson & Johnson Development Corporation	Johnson & Johnson
Johnson & Johnson Innovation	Johnson & Johnson
JCI Ventures	Johnson Controls International plc
Eighteen94 Capital	Kellogg Company
KT Venture Group	KLA-Tencor Corporation
Knight Ridder Ventures	Knight-Ridder, Inc.
Liberty Global Ventures	Liberty Global plc
Liberty Israel Venture Fund	Liberty Media Corporation
Lilly Ventures	Eli Lilly and Company
Live Nation Labs	Live Nation Entertainment, Inc.

Appendix A: List of CVC Firms and Parent Firms (Continued)

Corporate Venture Capital Firm	Parent Firm(s)
Lockheed Martin Ventures	Lockheed Martin Corporation
Lowe's Ventures	Lowe's Companies, Inc.
Lucent Venture Partners	Lucent Technologies Inc.
Maxim Ventures	Maxim Integrated Products, Inc.
McGraw-Hill Ventures	The McGraw-Hill Companies, Inc.
McKesson Ventures	McKesson Corporation
MDC Dream Ventures	MDC Partners Inc.
Merck Capital Ventures	Merck & Co., Inc.
Merck Global Health Innovation Fund	Merck & Co., Inc.
MRL Ventures	Merck & Co., Inc.
Micron Ventures	Micron Technology, Inc.
Microsoft Corporation - Strategic Investments	Microsoft Corporation
Bing Fund	Microsoft Corporation
Microsoft Accelerator	Microsoft Corporation
Microsoft Ventures	Microsoft Corporation
Monsanto Growth Ventures	Monsanto Company
Motorola Mobility Ventures	Motorola Mobility Holdings, Inc.
Motorola Solutions Venture Capital	Motorola Solutions, Inc.
Ramshorn Investments	Nabors Industries, Ltd.
NJR Clean Energy Ventures	New Jersey Resources Corporation
Pereg Ventures	Nielsen Holdings plc
NVIDIA GPU Ventures	Nvidia Corporation
Pfizer Venture Investments	Pfizer Inc.
Qualcomm Ventures	Qualcomm Incorporated
Salesforce Ventures	Salesforce.com, Inc.
SanDisk Ventures	SanDisk Corporation
Schlumberger Technology Investments	Schlumberger Limited
ServiceNow Ventures	ServiceNow, Inc.
Simon Ventures	Simon Property Group, Inc.
Sinclair Ventures	Sinclair Broadcast Group, Inc.
Sinclair Digital Ventures	Sinclair Broadcast Group, Inc.
Stanley Ventures	Stanley Black & Decker, Inc.
Sysco Ventures	Sysco Corporation
TI Ventures	Texas Instruments Incorporated
Time Warner Investments	Time Warner Inc.
Twitter Ventures	Twitter, Inc.
Tyco Ventures	Tyco International Ltd.
Tyson New Ventures	Tyson Foods, Inc.
UPS Strategic Enterprise Fund	United Parcel Service, Inc.
Verizon Ventures	Verizon Communications Inc.
Steamboat Ventures	The Walt Disney Company
Western Digital Capital	Western Digital Corporation
Workday Ventures	Workday, Inc.
Xilinx Technology Growth Fund	Xilinx, Inc.
Zebra Ventures	Zebra Technologies Corporation

Appendix B: Variable Descriptions and Data Sources

Variable	Description	Data Source
CVC_Indicator	Indicator variable set to 1 (0 otherwise) if parent firm *i* has a CVC program in fiscal year *t*.	SEC filings
R&D_Spending	R&D expense scaled by total revenue ($XRD_{t-1}/REVT_{t-1}$) in fiscal year *t-1*.	Compustat
Capex_Inv	Capital expenditures scaled by total revenue ($CAPX_{t-1}/REVT_{t-1}$) in fiscal year *t-1*.	Compustat
Ext_Financing	Net change in cash from equity and debt activities, scaled by average total assets $((SSTK_{t-1} - PRSTKC_{t-1} - DV_{t-1}) + (DLTIS_{t-1} - DLTR_{t-1} + DLCCH_{t-1})) / ((AT_{t-1} + AT_{t-2})/2)$ in fiscal year *t-1*.	Compustat
Cash_Position	Cash and short-term investments scaled by total assets (CHE_{t-1}/TA_{t-1}) in fiscal year *t-1*.	Compustat
Size	Natural log of market value of equity ln(PRC*SHROUT) at the end of fiscal year *t-1*.	CRSP
Book-to-market	Total equity scaled by market value of equity (CEQ*1000)/(PRC*SHROUT) at the end of fiscal year *t-1*.	Compustat & CRSP
Leverage	Total debt scaled by total assets (DT_{t-1}/AT_{t-1}) in fiscal year *t-1*.	Compustat
Growth	Rate of change of annual total revenue ($REVT_{t-1}/REVT_{t-2} - 1$) in fiscal year *t-1*.	Compustat
Profitability	Income before extraordinary items scaled by average total assets ($IB_{t-1}/(AT_{t-1}+AT_{t-2})/2$) in fiscal year *t-1*.	Compustat
Loss_Firm	Indicator variable set to 1 (0 otherwise) if prior year's income before extraordinary items is negative ($IB_{t-1}<0$).	Compustat
Disc_Score	Sum of six indicator variables set to 1 (0 otherwise) if firm *i* discloses each of the following in its 10-K filing for fiscal year *t*: 1) a general description of its CVC program, 2) a list of its CVC portfolio investees, 3) an Exhibit 21 to its 10-K that includes its CVC subsidiary, 4) total expected fund commitment amounts, 5) total actual committed amounts to date, and 6) time horizon of prior CVC investments.	SEC filings
Loc_Score	Sum of six indicator variables set to 1 (0 otherwise) if firm *i* discloses information in each of the following locations in fiscal year *t*: 1) Item 1 of the 10-K (Business Description), 2) Item 7 of the 10-K (Management's Discussion and Analysis), 3) Footnotes of the 10-K, 4) other locations of the 10-K (Items 2, 4, 5, 6, 10, and 13), 5) 8-K filing, and 6) corporate website.	SEC filings
Num_Analysts	Natural log of one plus the latest number of analysts who issued an EPS forecast for firm *i*'s current fiscal year *t*.	I/B/E/S
Dedicated	Percentage ownership of shares outstanding of firm *i* held by dedicated institutional investors as of December of current fiscal year *t*.	Thomson Reuters 13F
Quasi-Indexers	Percentage ownership of shares outstanding of firm *i* held by quasi-indexer institutional investors as of December of current fiscal year *t*.	Thomson Reuters 13F
Transients	Percentage ownership of shares outstanding of firm *i* held by transient institutional investors as of December of current fiscal year *t*.	Thomson Reuters 13F
Competition	One minus the Herfindahl-Hirschman Index, calculated as the sum of the squares of sales market shares of the top 10 firms (ranked by sales) within the same two-digit SIC industry.	Compustat

Appendix B: Variable Descriptions and Data Sources (Continued)

Variable	Description	Data Source
Num_Investees	Natural log of one plus the number of investees that parent firm *i* has invested in through its CVC program in year *t*.	CB Insights, Crunchbase, and Factiva
Invested_Amt	Natural log of one plus the total amount of investments (in millions) made by firm *i* through its CVC program during fiscal year *t*.	CB Insights, Crunchbase, and Factiva
Outside_Industries	Percentage of investees in a CVC's portfolio that are in a different two-digit SIC than parent firm *i* in year *t*.	CB Insights, Crunchbase, and Factiva
Acq_Num	Natural log of one plus the total number of acquisitions made by firm *i* during fiscal year *t*.	Thomson Reuters SDC
Acq_Cash	Cash outflows used for acquisitions, scaled by total revenue, by firm *i* during fiscal year *t* (AQC_t / $REVT_t$).	Compustat
Acq_Gw&Intan	Acquired goodwill and intangible assets, scaled by total revenue, by firm *i* during fiscal year *t* (($ACQGDWL_t$ + $ACQINTAN_t$) / $REVT_t$). When $ACQGDWL_t$ is missing in Compustat, it is replaced with $GDWL_t - GDWL_{t-1}$.	Compustat
Sales_Contri_Acq	Sales contribution from acquisitions, scaled by total revenue, for firm *i* during fiscal year *t* (AQS_t / $REVT_t$).	Compustat
GW_Impairments	Goodwill impairments, scaled by total revenue, for firm *i* during fiscal year *t* (−$GDWLIP_t$ / $REVT_t$).	Compustat
Num_Prod_Segments	Number of reported product segments (unique PDID variable) for firm *i* in fiscal year *t*.	Compustat Segments

Appendix C: Coding Procedure for *Disc_Score*

<table>
<tr><th>Disclosure Item</th><th>Coding Procedure and Example</th></tr>
<tr><td>1) General description of CVC program</td><td>Coding: From a parent company's 10-K, we search for text that mentions a CVC program. If the company describes its investments in a venture capital fund or privately-held start-ups, we add 1 point (0 otherwise).
Example: As part of our strategy, we will continue to evaluate opportunities for strategic investments through our venture capital investment arm, Dell Technologies Capital, with a focus on emerging technology areas that are relevant to the Dell Technologies' unique family of businesses and that will complement our existing portfolio of solutions. (Source: Dell Technologies, 10-K 2/2/2018, Item 7. MD&A)</td></tr>
<tr><td>2) List of CVC portfolio investees</td><td>Coding: From a parent company's 10-K, we search for list of CVC portfolio investees. If the company discloses this information, we add 1 point (0 otherwise).
Example: See Adobe Systems example described in Section 3.1 of this paper. (Source: Adobe Systems, 10-K 12/3/1999, Item 1. Business)</td></tr>
<tr><td>3) Exhibit 21 to 10-K that includes CVC subsidiary</td><td>Coding: From a parent company's 10-K Exhibit 21, we look for the company's CVC subsidiary. If it is listed in Exhibit 21, we add 1 point (0 otherwise).
Example:
<table><tr><td>Subsidiaries of the Registrant</td><td>State or Other Jurisdiction of Incorporation</td></tr><tr><td>Intel Capital Corporation</td><td>Delaware, U.S.</td></tr></table>(Source: Intel Corporation, 10-K 12/30/2017, Exhibit 21.1)</td></tr>
<tr><td>4) Total expected fund commitment amounts</td><td>Coding: From a parent company's 10-K, we search for fund commitment amounts for its CVC program. If disclosed, we add 1 point (0 otherwise).
Example: Also excluded from research and development obligations are potential future funding commitments of up to approximately $90 million for investments in research venture capital funds. (Source: Merck & Co., 10-K 12/31/2016, Item 7. MD&A)</td></tr>
<tr><td>5) Total actual committed amounts to date</td><td>Coding: From a parent company's 10-K, we search for total amounts of actual contribution to its CVC program. If the company discloses this information, we add 1 point (0 otherwise).
Example: Net cash used in investing activities for the year ended 2014... consisted of $345.4 million related to acquisitions, $22.7 million of net purchases of property and equipment, $6.6 million in minority investments of less than 20% made through 3D Ventures, our venture investment initiative, in promising enterprises that we believe will benefit from or be powered by our technologies, and $0.8 million of additions to license and patent costs. (Source: 3D Systems Corporation, 10-K 12/31/2014, Item 7. MD&A)</td></tr>
<tr><td>6) Time horizon of CVC investments</td><td>Coding: From a parent company's 10-K, we search for investment time horizon of its CVC program. If the company discloses this information, we add 1 point (0 otherwise).
Example: In addition, the Company has committed to funding obligations related to certain venture capital investments. If required, the Company's commitment could total $26 million over the next five years. (Source: Eastman Chemical Company, 10-K 12/31/2003, Note 10. Commitments)</td></tr>
</table>

Appendix D: Acquisition Announcement

Verizon acquires Skyward to simplify drone operations and reduce complexity for operators

Acquisition of Skyward advances Verizon's strategy to operate in innovative, high-growth IoT markets leveraging Verizon's core assets

NEW YORK, Feb. 16, 2017 /PRNewswire/ -- Building on its strategy to drive innovation and adoption for IoT services in high-growth markets, Verizon today announced that it has purchased Skyward, a private company based in Portland, Oregon. Skyward brings drone operations management to the Verizon IoT portfolio, simplifying drone operations and management for organizations of any size. Terms of the transaction have not been disclosed.

Internationally, companies rely on Skyward for managing operations, improving safety and lowering operating costs. Through this acquisition, businesses small and large will now have a single source for integrating, managing and wirelessly connecting their drone operations – linking all the people, projects and equipment involved into one clear and efficient workflow.

Mike Lanman, senior vice president - Enterprise Products and IoT at Verizon, said: "Last quarter we announced our strategy to drive innovation and widespread adoption for in-fight wireless connectivity through our Airborne LTE Operations (ALO) initiative, a new service to simplify certification and connectivity of wireless drones. This acquisition is a natural progression of our core focus on operating in innovative, high-growth markets, leveraging our network, scale, fleet management, device management, data analytics and security enablement capabilities and services to simplify the drone industry and help support the adoption of IoT."

Skyward founder and CEO Jonathan Evans said: "Drones are becoming an essential tool for improving business processes at large companies, but scalability has been a challenge. Skyward's drone operations management platform combined with Verizon's network, reliability, scale and expertise in delivering enterprise solutions will allow organizations to efficiently and safely scale drones across multiple divisions and hundreds of use cases."

Thanks to advances in technology and regulations, organizations are looking at drones to help run their business. From agriculture to telecommunications and from industrial construction to film production, major corporations, small businesses, and individuals are using drones to save time, improve safety, and operate more efficiently. The value is clear, but scaling and managing a drone program can be complex.

With Skyward's technology, Verizon will streamline the management of drone operations through one platform designed to handle end-to-end activities such as mission planning, complex workflow, FAA compliance support, supplying information about restricted airspace and pilot credentialing, drone registration and provisioning rate plans for drones on Verizon's network. All of this is designed to help developers and businesses create and manage a wide-range of services backed by Verizon's mobile private network, secure cloud interconnect and data analytics capabilities.

Through investments and strategic business and industry partnerships, Verizon continues to drive innovation via its Verizon Labs technology organization and Verizon Ventures, the company's venture capital division. Verizon Ventures brought Skyward in as a portfolio company and was the first wireless service provider to become a member of the Small UAV Coalition (SUAVC). The acquisition of Skyward speaks to Verizon's strategy to operate in innovative, high growth markets leveraging core assets to help accelerate IoT adoption. In 2016, revenue from Verizon's internet of things business approached $1 billion.

In connection with the transaction, GCA Advisors LLC acted as financial advisor to Skyward, and Perkins Coie LLP acted as legal advisor.

Table 1: Sample

Panel A: Sample Composition

Two-digit SIC	Industry Description	Number of Parent Firms	Number of CVC Firms	Number of Startup Firms	Startups per CVC firm
01	Agricultural Production – Crops	1	1	18	18.0
13	Oil & Gas Extraction	4	4	71	17.7
20	Food & Kindred Products	5	5	222	44.4
21	Tobacco Products	1	1	3	3.0
26	Paper & Allied Products	1	1	16	16.0
27	Printing & Publishing	1	1	1	1.0
28	Chemical & Allied Products	14	18	526	29.2
29	Petroleum & Coal Products	1	1	57	57.0
35	Industrial Machinery & Equipment	12	12	233	19.4
36	Electronic & Other Electric Equipment	12	12	1,695	141.3
37	Transportation Equipment	4	6	21	3.5
38	Instruments & Related Products	5	6	53	8.8
39	Miscellaneous Manufacturing Industries	1	1	2	2.0
42	Trucking & Warehousing	1	1	32	32.0
45	Transportation by Air	1	1	7	7.0
48	Communications	10	13	700	53.8
49	Electric, Gas, & Sanitary Services	4	4	57	14.3
51	Wholesale Trade – Nondurable Goods	2	2	14	7.0
52	Building Materials, Hardware, & Supplies	1	1	8	8.0
57	Furniture & Home Furnishings Stores	1	1	17	17.0
59	Miscellaneous Retail	1	1	28	28.0
63	Insurance Carriers	1	1	10	10.0
67	Holding and Other Investment Offices	1	1	21	21.0
73	Business Services	22	28	1,426	50.9
79	Motion Pictures	1	1	1	1.0
80	Health Services	1	1	4	4.0
82	Educational Services	1	1	1	1.0
87	Engineering & Management Services	2	2	21	10.5
99	Non-Classifiable Establishments	3	5	250	50.0
Total		115	133	5,515	41.5

Table 1: Sample (Continued)

Panel B: Sample Years

Year	Number of CVC-Years	Percent of CVC-Years	Number of Startups
1996	3	0.3%	3
1997	4	0.4%	1
1998	7	0.7%	9
1999	20	2.1%	55
2000	36	3.8%	267
2001	37	3.9%	146
2002	38	4.0%	100
2003	40	4.2%	121
2004	45	4.8%	119
2005	45	4.8%	151
2006	47	5.0%	204
2007	44	4.7%	261
2008	44	4.7%	186
2009	45	4.8%	160
2010	49	5.2%	229
2011	53	5.6%	407
2012	56	5.9%	300
2013	61	6.5%	503
2014	63	6.7%	541
2015	71	7.5%	682
2016	74	7.8%	526
2017	63	6.7%	544
Total	945	100.0%	5,515

Table 1, Panel A shows the number of parent firms, CVC firms, startup firms, and startups per CVC firm by two-digit SIC industry. Panel B shows the sample years and startups receiving investments by year.

Table 2: Determinants of Having a CVC Program

Panel A: Descriptive Statistics

Variable	N	Mean	Min	P25	Median	P75	Max
CVC_Indicator	1,766	0.500	0	0	0.500	1	1
R&D_Spending	1,766	0.071	0	0	0.030	0.130	0.399
Capex_Inv	1,766	0.076	–0.005	0.023	0.041	0.084	0.829
Ext_Financing	1,766	–0.032	–0.369	–0.080	–0.038	0.004	0.716
Cash_Position	1,766	0.184	0.001	0.048	0.125	0.273	0.734
Size	1,766	16.864	12.689	15.990	17.063	17.974	19.730
Book-to-Market	1,766	0.510	–0.471	0.187	0.326	0.516	13.666
Leverage	1,766	0.220	0.000	0.094	0.195	0.311	0.757
Growth	1,766	0.107	–0.459	–0.005	0.070	0.169	2.015
Profitability	1,766	0.068	–0.393	0.031	0.072	0.120	0.367
Loss_Firm	1,766	0.129	0	0	0	0	1
Disc_Score	883	0.806	0	0	0	1	5
Loc_Score	883	1.598	0	1	1	2	5
Num_Analysts (not logged)	883	19.566	0	13	20	26	44
Num_Analysts (logged)	883	2.815	0	2.639	3.045	3.296	3.807
Dedicated	883	0.050	0	0.000	0.044	0.076	0.235
Quasi-Indexers	883	0.399	0	0.297	0.442	0.532	0.751
Transients	883	0.109	0	0.055	0.096	0.149	0.419
Competition	883	0.861	0.421	0.855	0.878	0.890	0.897
Num_Investees (not logged)	883	6.040	0	1	2	5	80
Num_Investees (logged)	883	1.212	0	0.693	1.099	1.792	4.394
Invested_Amt (not logged, $M)	883	26.094	0	0	4.650	19.214	398.930
Invested_Amt (logged)	883	1.853	0	0	1.732	3.006	5.991
Outside_Industries	883	0.624	0	0	0.750	1	1
Acq_Num (not logged)	1,766	2.941	4.298	0	0	0.5	1
Acq_Num (logged)	1,766	0.973	0.853	0	0	0.030	0.130
Acq_Cash	1,765	0.044	–0.119	0	0.005	0.030	0.831
Acq_Gw&Intan	1,765	0.026	–0.747	0	0.001	0.020	1.093
Sales_Contri_Acq	1,765	0.015	0	0	0	0	0.493
GW_Impairments	1,765	0.013	0	0	0	0	0.741
Num_Prod_Segments	1,766	1.501	1	1	4	8	45

Table 2: Determinants of Having a CVC Program (Continued)

Panel B: Descriptive Statistics by Firms with and without CVC program

Variable	*CVC_ Indicator=1* Mean	*CVC_ Indicator=0* Mean	Diff	t-stat		*CVC_ Indicator=1* Median	*CVC_ Indicator=0* Median	Diff	z-stat	
R&D_Spending	0.084	0.057	0.027	6.73	***	0.054	0.017	0.037	6.793	***
Capex_Inv	0.070	0.082	–0.012	–2.45	**	0.044	0.039	0.005	2.480	**
Ext_Financing	–0.035	–0.028	–0.007	–1.25		–0.041	–0.035	–0.006	–0.509	
Cash_Position	0.196	0.172	0.024	2.88	***	0.145	0.103	0.042	3.208	***
Size	16.987	16.742	0.245	3.37	***	17.229	16.977	0.252	3.970	***
Book-to-Market	0.425	0.595	–0.170	–3.20	**	0.332	0.319	0.013	0.506	
Leverage	0.223	0.218	0.005	0.63		0.197	0.195	0.003	0.809	
Growth	0.087	0.128	–0.041	–3.31	***	0.064	0.079	–0.015	–1.957	*
Profitability	0.064	0.072	–0.008	–1.70	*	0.063	0.080	–0.016	–3.612	***
Loss_Firm	0.138	0.120	0.018	1.14		0.000	0.000	0.000	1.135	

Table 2: Determinants of Having a CVC Program (Continued)

Panel C: Pair-wise Correlation Table (N=1,766; Pearson in upper diagonal, Spearman in lower diagonal)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)	*CVC_Indicator*		0.158†	–0.058†	–0.030	0.069†	0.080†	–0.076†	0.015	–0.078†	–0.040	0.027
(2)	*R&D_Spending*	0.162†		–0.030	0.069†	0.538†	0.111†	–0.115†	–0.287†	0.137†	–0.007	0.138†
(3)	*Capex_Inv*	0.059†	–0.035		0.245†	–0.145†	–0.029	0.084†	0.134†	0.159†	–0.228†	0.185†
(4)	*Ext_Financing*	–0.012	–0.058†	0.183†		0.055†	–0.240†	0.042	0.159†	0.422†	–0.318†	0.210†
(5)	*Cash_Position*	0.076†	0.617†	–0.221†	–0.037		–0.029	–0.083†	–0.407†	0.159†	0.183†	0.030
(6)	*Size*	0.095†	0.186†	0.157†	–0.234†	0.018		–0.216†	–0.117†	–0.113†	0.275†	–0.256†
(7)	*Book-to-Market*	0.012	–0.263†	0.077†	0.174†	–0.252†	–0.236†		–0.033	–0.009	–0.075†	0.021
(8)	*Leverage*	0.019	–0.330†	0.135†	0.145†	–0.482†	–0.025	–0.029		–0.069†	–0.191†	0.076†
(9)	*Growth*	–0.047	0.096†	0.080†	0.219†	0.117†	–0.062†	–0.073†	–0.164†		0.014	0.027
(10)	*Profitability*	–0.086†	0.203†	–0.143†	–0.399†	0.325†	0.298†	–0.329†	–0.286†	0.238†		–0.678†
(11)	*Loss_Firm*	0.027	0.050†	0.100†	0.241†	0.003	–0.231†	0.020	0.046	–0.097†	–0.581†	

Table 2: Determinants of Having a CVC Program (Continued)

Panel D: Probit Regression

Dependent Variable:	Pred. Sign	$CVC\_Indicator_t$
$R\&D\_Spending_{t-1}$		4.202 ***
		(2.74)
$Capex\_Inv_{t-1}$		–1.584 *
		(–1.84)
$Ext\_Financing_{t-1}$	−	–0.181
		(–0.39)
$Cash\_Position_{t-1}$	+	0.203
		(0.37)
$Size_{t-1}$		0.088
		(1.21)
$Book\text{-}to\text{-}Market_{t-1}$		–0.077
		(–1.63)
$Leverage_{t-1}$		0.680
		(1.25)
$Growth_{t-1}$		–0.523 **
		(–2.47)
$Profitability_{t-1}$		–0.961
		(–1.12)
$Loss\_Firm_{t-1}$		–0.062
		(–0.31)
Constant		–1.623
		(–1.08)
Year Fixed Effects		Included
Industry Fixed Effects		Included
N Observations		1,766
Pseudo-R^2		0.057

Table 2, Panel A shows descriptive statistics of the variables used in regression equations (1) through (5). Panel B shows the statistics partitioned by parent firms with a CVC subsidiary (*CVC_Indicator=1*) and without a CVC subsidiary (*CVC_Indicator=0*). Tests for differences in means are based on two-side t-tests, and tests of differences in medians are based on Wilcoxon signed-rank tests. Panel C shows pair-wise correlations, with Pearson correlations in the upper diagonal and Spearman correlations in the lower diagonal. † indicates statistical significance at the 1% level. Panel D presents the results of estimating regression equation (1), where standard errors are two-way clustered by firm and year. *, **, *** indicate the coefficient is significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test when there is a directional prediction and a two-tailed test otherwise.

Table 3: Determinants of Disclosure of CVC activities

Regression Type:		OLS		Ordered Logit	
Dependent Variable:	Pred. Sign.	$Disc\_Score_t$ (1)	Loc_Score_t (2)	$Disc\_Score_t$ (3)	Loc_Score_t (4)
$Num\_Analysts_t$	+	–0.031	0.115 *	–0.150	0.214
		(–0.35)	(1.36)	(–0.72)	(1.20)
$Dedicated_t$	−	–2.191 **	–2.307 *	–6.395 **	–3.646 *
		(–1.84)	(–1.62)	(–2.07)	(–1.30)
$Quasi\text{-}Indexers_t$	+	0.027	0.527 *	–0.284	1.015 *
		(0.07)	(1.63)	(–0.33)	(1.37)
$Transients_t$	+	1.789 **	3.664 ***	4.916 **	6.921 ***
		(2.03)	(3.37)	(2.32)	(3.49)
$Competition_t$	−	–3.885 ***	–1.674	–13.985 ***	–2.619
		(–2.80)	(–0.80)	(–2.90)	(–0.44)
$Num\_Investees_t$	+	0.019	0.236 **	0.060	0.478 **
		(0.15)	(1.87)	(0.19)	(1.99)
$Invested\_Amt_t$	+	0.126 **	0.059	0.338 **	0.115
		(2.18)	(0.91)	(2.18)	(0.95)
$Outside\_Industries_t$	−	–0.304 **	–0.536 ***	–0.594 *	–1.037 ***
		(–2.13)	(–3.27)	(–1.63)	(–2.98)
$Size_t$		–0.189 **	–0.009	–0.364 *	0.024
		(–2.13)	(–0.10)	(–1.85)	(0.13)
$Book\text{-}to\text{-}market_t$		–0.144	0.110	–0.311	0.158
		(–0.66)	(0.41)	(–0.61)	(0.27)
$Leverage_t$		–0.474	1.139	–0.812	2.223 *
		(–0.71)	(1.63)	(–0.62)	(1.73)
$Growth_t$		–0.328	–0.013	–0.432	0.003
		(–1.13)	(–0.04)	(–0.81)	(0.01)
$Profitability_t$		0.785	1.031	1.827	1.290
		(0.71)	(0.69)	(0.83)	(0.50)
$Loss\_Firm_t$		0.231	0.205	0.528	0.507
		(1.11)	(1.11)	(1.28)	(1.37)
Constant		7.254 ***	2.078	16.551 ***	0.673
		(3.93)	(0.88)	(3.26)	(0.12)
Year Fixed Effects		Included	Included	Included	Included
Industry Fixed Effects		Included	Included	Included	Included
N Observations		883	883	883	883
Adjusted R^2		0.271	0.244	0.163	0.112

Table 3 presents the results of estimating regression equation (2). Standard errors are two-way clustered by firm and year in columns (1) and (2), and clustered by firm in columns (3) and (4). *, **, *** indicate the coefficient is significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test when there is a directional prediction and a two-tailed test otherwise.

Table 4: CVC and Future Acquisitions and Reporting

Panel A: Acquisitive Behavior

Dependent Variable		*Acq_Num*		*Acq_Cash*		*Acq_GW&Intan*	
Time Period	Pred. Sign	*t+1 to t+3*	*t+2 to t+4*	*t+1 to t+3*	*t+2 to t+4*	*t+1 to t+3*	*t+2 to t+4*
		(1)	(2)	(3)	(4)	(5)	(6)
$CVC\_Indicator_t$	+	0.163 ***	0.193 ***	0.010	0.040	0.048 *	0.053 *
		(2.39)	(2.53)	(0.34)	(0.93)	(1.52)	(1.35)
Acq_Num_t		0.606 ***	0.489 **				
		(13.66)	(11.93)				
Acq_Cash_t				0.450 ***	0.290 *		
				(3.28)	(1.86)		
$Acq\_GW\&Intan_t$						0.068	0.120
						(0.45)	(0.88)
$Size_t$		0.167 ***	0.21 ***	–0.028 **	–0.033	–0.019	–0.022
		(5.86)	(5.69)	(–2.08)	(–1.43)	(–1.50)	(–1.27)
$Book\text{-}to\text{-}Market_t$		0.039	0.046 *	–0.013 ***	–0.015 *	–0.017 ***	–0.018 ***
		(1.62)	(1.73)	(–2.68)	(–1.84)	(–3.02)	(–2.73)
$Leverage_t$		0.075	0.151	–0.102	–0.104	–0.001	0.045
		(0.45)	(0.73)	(–1.04)	(–0.75)	(–0.01)	(0.35)
$Growth_t$		0.005	-0.042	0.051	0.005	0.009	–0.010
		(0.03)	(-0.27)	(0.76)	(0.07)	(0.13)	(–0.10)
$Profitability_t$		0.557 *	0.712 *	0.385 *	0.444 *	0.636 ***	0.528 *
		(1.67)	(1.78)	(1.94)	(1.66)	(2.63)	(1.83)
$Loss\_Firm_t$		0.019	0.068	0.057	0.109 **	0.085	0.078
		(0.19)	(0.58)	(1.41)	(2.07)	(1.28)	(1.16)
Constant		-0.585	-2.391 ***	0.704 ***	0.919 ***	0.292	0.274
		(-1.32)	(-4.08)	(3.54)	(2.94)	(1.49)	(1.11)
Year Fixed Effects		Included	Included	Included	Included	Included	Included
Industry Fixed Effects		Included	Included	Included	Included	Included	Included
Observations		1,586	1,420	1,611	1,445	1,611	1,445
R–squared		0.560	0.527	0.150	0.142	0.109	0.115

*, **, *** Significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test when there is a directional prediction and a two-tailed test otherwise.

Table 4: CVC and Future Acquisitions and Reporting (Continued)

Panel B: Acquisition Successes and Failures

Dependent Variable		*Sales_Contri_Acq*		*GW_Impairments*	
Time Period	Pred. Sign	*t+1 to t+3*	*t+2 to t+4*	*t+1 to t+3*	*t+2 to t+4*
		(1)	(2)	(3)	(4)
$CVC\_Indicator_t$	+	0.018 *	0.024 *	–0.007	–0.014
		(1.35)	(1.56)	(–0.89)	(–1.18)
$Sales\_Contri\_Acq_t$		0.054	0.003		
		(0.52)	(0.04)		
$GW\_Impairments_t$				0.202 *	0.146
				(1.68)	(1.30)
$Size_t$		–0.014 **	–0.009	–0.001	0.000
		(–2.04)	(–1.15)	(–0.41)	(0.04)
$Book\text{-}to\text{-}Market_t$		–0.009 ***	–0.006 **	–0.000	0.001
		(–3.09)	(–2.01)	(–0.16)	(0.52)
$Leverage_t$		–0.020	–0.011	–0.009	–0.038
		(–0.41)	(–0.22)	(–0.45)	(–1.15)
$Growth_t$		0.035	0.011	–0.013	0.004
		(0.86)	(0.32)	(–0.59)	(0.24)
$Profitability_t$		0.048	0.099	–0.035 ***	–0.025
		(0.38)	(0.90)	(–3.54)	(–0.65)
$Loss\_Firm_t$		0.011	0.033	0.003	0.013
		(0.33)	(1.12)	(0.37)	(0.57)
Constant		0.374 ***	0.277 **	0.016	0.016
		(3.58)	(2.54)	(0.38)	(0.26)
Year Fixed Effects		Included	Included	Included	Included
Industry Fixed Effects		Included	Included	Included	Included
Observations		1,611	1,445	1,611	1,445
R-squared		0.070	0.068	0.164	0.144

Table 4, Panel A presents the results of estimating regression equation (3). Panel B presents the results of estimating regression equations (4) and (5). Standard errors are two-way clustered by firm and year. *, **, *** indicate the coefficient is significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test when there is a directional prediction and a two-tailed test otherwise.

Table 5: CVC Disclosure and Future Acquisitions

Dependent Variable	*Acq_Num (t+1 to t+3)*		*Acq_Num (t+2 to t+4)*	
Subsample	*Low Disc_Score*	*High Disc_Score*	*Low Disc_Score*	*High Disc_Score*
	(1)	(2)	(3)	(4)
$CVC\_Indicator_t$	0.241 ***, †	0.107	0.281 ***, †	0.133
	(3.00)	(1.42)	(3.32)	(1.60)
Acq_Num_t	0.564 ***	0.600 ***	0.423 ***	0.504 ***
	(12.34)	(10.44)	(10.32)	(10.12)
$Size_t$	0.161 ***	0.150 ***	0.242 ***	0.167 ***
	(4.29)	(4.23)	(5.74)	(3.71)
$Book\text{-}to\text{-}Market_t$	0.010	0.063 **	0.025	0.065 **
	(0.43)	(2.22)	(1.03)	(2.46)
$Leverage_t$	0.118	0.041	0.177	0.173
	(0.60)	(0.18)	(0.68)	(0.69)
$Growth_t$	–0.073	0.100	–0.182	0.138
	(–0.32)	(0.53)	(–0.75)	(0.69)
$Profitability_t$	0.437	0.563 *	0.853 *	0.601
	(0.95)	(1.71)	(1.73)	(1.13)
$Loss\_Firm_t$	0.034	–0.005	0.091	0.057
	(0.51)	(–0.03)	(0.99)	(0.28)
Constant	0.168	–2.168 ***	–1.073	–2.343 ***
	(0.28)	(–4.45)	(–1.64)	(–3.45)
Year Fixed Effects	Included	Included	Included	Included
Industry Fixed Effects	Included	Included	Included	Included
Observations	796	790	717	703
R-squared	0.597	0.564	0.578	0.529

Table 5 presents the results of estimating regression equation (3), where the dependent variable is the number of future acquisitions (*Acq_Num*), and each subsample is partitioned by the median value of *Disc_Score*. *, **, *** indicates that the coefficients are significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a two-tailed test. † indicates that the coefficient for *CVC_Indicator* in the low *Disc_Score* subsample is significantly greater than the coefficient in the high *Disc_Score* subsample at the 10 percent level.

Table 6: CVC and Future Reported Product Segments

Dependent Variable		*Chg_Prod_Segments*	
Time Period	Pred. Sign	*t+1 to t+3*	*t+2 to t+4*
		(1)	(2)
$CVC\_Indicator_t$	+	0.804 ***	0.683 ***
		(3.98)	(3.81)
$Num\_Prod\_Segments_t$		−0.086 ***	−0.043 *
		(−2.71)	(−1.95)
$Size_t$		0.153 *	0.128 *
		(1.69)	(1.81)
$Book\text{-}to\text{-}Market_t$		0.118 **	0.069
		(2.02)	(1.39)
$Leverage_t$		−0.367	−0.531
		(−0.70)	(−1.11)
$Growth_t$		−0.102	−0.046
		(−0.20)	(−0.10)
$Profitability_t$		1.822	1.724
		(1.54)	(1.57)
$Loss\_Firm_t$		0.700 *	0.302
		(1.91)	(1.27)
Constant		−0.724	−1.859
		(−0.41)	(−1.58)
Year Fixed Effects		Included	Included
Industry Fixed Effects		Included	Included
Observations		1,614	1,448
R-squared		0.127	0.079

Table 6 presents the results of regressing the change in the future number of reported product segments on an indicator for whether a firm has a CVC subsidiary and control variables. Standard errors are two-way clustered by firm and year. *, **, *** indicate the coefficient is significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test when there is a directional prediction and a two-tailed test otherwise.