Federal Reserve Bank of New York
Staff Reports

Doing Well by Doing Good? Community Development Venture Capital

Anna Kovner
Josh Lerner

Staff Report No. 572
September 2012

Doing Well by Doing Good? Community Development Venture Capital

Anna Kovner and Josh Lerner

Federal Reserve Bank of New York Staff Reports, no. 572
September 2012
JEL classification: G20, G24, G28

Abstract

This paper examines the investments and performance of community development venture capital (CDVC). We find substantial differences between CDVC and traditional venture capital (VC) investments: CDVC investments are far more likely to be in nonmetropolitan regions and in regions with little prior venture capital activity. Moreover, CDVC is likely to be in earlier-stage investments and in industries outside the venture capital mainstream that have lower probabilities of successful exit. Even after we control for this unattractive transaction mix, the probability of a CDVC investment being successfully exited is lower. One benefit of CDVCs may be their effect in bringing traditional VC investment to underserved regions: When we control for the presence of traditional VC investments, each additional CDVC investment results in an additional 0.06 new traditional VC firm in a region.

Key words: community development, venture capital

Kovner: Federal Reserve Bank of New York (e-mail: anna.kovner@ny.frb.org). Lerner: Harvard University and National Bureau of Economic Research (e-mail: jlerner@harvard.edu). The authors thank the John D. and Catherine T. MacArthur Foundation and Harvard Business School's Division of Research for support of this project. They also thank Greg Bischak, Jim Greer, and Kristle Kilijanczyk for help with the CDFI Fund data. All errors and omissions are the authors' own. The views expressed in this paper are those of the authors and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.

1. **Introduction**

The past two decades have seen increasing interest in harnessing the venture capital model to achieve socially targeted ends. Features of the venture capital model such as extensive due diligence, the use of convertible preferred securities with many control rights, formal and informal involvement in the governance of the firm, and the use of equity to incent management are now widely understood to be effective in addressing agency problems and uncertainty (for evidence and a review of the literature, see Gompers and Lerner (2004) and Kaplan and Stromberg (2003)). The desire of policymakers and foundations to harness these tools to address broader social needs is understandable.

Reflecting this desire, numerous policy efforts have sought to encourage what are termed "community development" venture capital funds. In recent years, the Obama administration has designated as much as $5 billion in tax credits annually (more than 25 percent of the entire amount of venture capital funds raised in the US in 2009) for its "New Markets" venture capital initiative.[1] Similar efforts have been undertaken by the European Community and a number of member states (most notably, Great Britain), by a number of major foundations, and by a diverse array of other nations. These funds are characterized by a self-described "double bottom line" orientation: i.e., an attention to both private and social investment returns.

[1] According to the US Treasury, "the New Markets Tax Credit (NMTC) Program permits taxpayers to receive a credit against Federal income taxes for making qualified equity investments in designated Community Development Entities (CDEs). Substantially all of the qualified equity investment must in turn be used by the CDE to provide investments in low-income communities" (http://www.cdfifund.gov/what_we_do/programs_id.asp?programID=5, accessed May 6, 2010).

As compelling as it seems to apply a proven business strategy to community development, the process of marrying the venture capital model with community development is not necessarily obvious. One of the critical aspects of the venture capital process is the alignment of incentives so that all parties benefit from the same outcomes at similar times—i.e., at the time the investment is liquidated. With the presence of multiple objectives, it can be hard to ensure an optimal alignment of interests. Second, the aspiration of aligning private and social returns may be a false hope. It is possible that transactions refused by traditional VCs offer neither as attractive financial returns nor as wide-ranging social benefits. Finally, even if the community development venture capital model could work, the rules and limitations—for instance, on investment decisions and compensation—placed on firm by the funding bodies, whether governments or foundations, may undermine its prospects (Lerner (2009)).

Despite these challenging issues, community development venture capital funds (CDVCs) have received remarkably little attention in corporate finance. This paper seeks to take a systematic look at these funds and their impact. Using a sample of 65 thousand venture capital investments in the United States between 1996 and October 2009, we proceed in three parts.

First, we examine how the composition of investments by community development venture funds differs from those of traditional groups. We find substantial differences: Community development fund investments are far more likely to be in non-metropolitan regions and in regions with little prior venture activity. CDVC investments are likely to be in earlier-stage investments and in industries outside the venture capital mainstream. Deals in which

traditional VCs invest alongside CDVCs share many of these features, but are more likely to be in the traditional VC industries.

Second, when we turn to considering the success of CDVC investments—as measured by the probability of going public or being acquired—we find that the types of deals where CDVC investments are concentrated have a lower probability of success in general. Even after controlling for this unattractive transaction mixture, however, the probability of a CDVC investment being successfully exited is lower.

In the third section, we examine the broader impact of these investments. While the relationship between the number of VC firms and the number of VC investments in a region is inherently difficult to estimate, we look to see if the presence of CDVCs and CDVC investments is associated with an increased number of non-CDVC firms. Controlling for the presence of traditional VC investments, each additional CDVC investment results in an additional 0.06 new traditional VC firms in a region. Of course, this result must be interpreted cautiously because it is possibly that CDVCs are simply investing in areas where traditional VCs are planning to grow. If CDVCs really do increase the likelihood that traditional firms locate or invest in underserved regions, they play an important role in facilitating economic growth, even if their actual investments are not profitable, as a number of papers document that traditional venture capitalists play an important role in facilitating growth (for example Kortum and Lerner (2000) and Mollica and Zingales (2007)).

This paper is related to several strands of work in the economics and financial economics literature. First, individual government programs with venture-like properties have been evaluated in academic research. Perhaps the most studied program is the Small Business Innovation Research program, which provides public early stage financing to firms, and has been found to have funded firms that grew faster than their peers only in zip codes with VC activity (Lerner (1999), Wallsten (1999)). But these programs typically differ substantially from community development venture programs. In a contemporaneous paper, Brander, et al. (2010) examine government programs across 57 countries, combining traditional funds which received public funding with those that had an ancillary community development role. They find that companies financed by government-backed VCs outperform as long as the share of funding from non government-backed funds is large enough.

The paper is also related to the economics literature on industrial clustering. This literature, which documents the importance of agglomeration externalities, motivates our analysis of the impact of CDVCs beyond the companies in which they directly invest. Our finding that CDVCs investments encourage traditional VCs and their investments is consistent with our previous work on agglomeration externalities in venture capital (Gompers, Kovner, and Lerner (2010)) as well as with the broader evidence for geographic knowledge spillovers (see for example Zucker, Darby, and Brewer (1998) and Agrawal, Kapur, and McHale (2008)).

2. **Community development venture capital funds**[2]

[2] Parts of this section draw on Lerner (2009).

The origins of community development venture capital funds can be traced back to the establishment of the British Government's founding of Industrial and Commercial Finance Corporation (ICFC) in 1945.[3] The new entity's goal was to provide long-term capital for small and medium-sized firms, to help domestic industry recover from the ravages of World War II and the Great Depression that had preceded it. The Bank of England and five major clearing banks funded the effort with £10 million in equity ownership.

ICFC was far from a pure venture capitalist. It initially used both debt and equity to fulfill its mandate. Under Lord William Piercy, its first chairman, ICFC became somewhat of a financial maverick and an innovator, working across much of the economy and injecting a new measure of competition into London's financial circles: for instance, frustrated by the high prices charged to take medium-sized companies public, in the early 1950s ICFC began offering underwriting services at a substantial discount. But the bulk of its activities focused on financing small, especially family, businesses. ICFC expanded into regions outside London, moving first into Birmingham and then, by 1953, into Manchester and Edinburgh. Over the years, the firm (renamed 3i) expanded the classes of investments it made—for instance, moving into buyouts and European groups. Meanwhile, 3i transformed itself, in some ways increasingly resembling other venture groups (i.e., dropping some of the far-flung product lines, like consulting and the financing of very small businesses).

[3] The next two paragraphs are based on Coopey and Clarke (1995), Hardymon, et al. (2003), and "3i" (1995).

In the United States, these efforts can be traced to the Small Business Investment Company (SBIC) program.[4] As enacted in 1958, SBICs received two powerful mandates: they could borrow up to half their capital from the federal government and would also receive a variety of favorable tax incentives. In return, the SBICs had to confine themselves to investing in small businesses. More onerously, the investments were limited to those structured in certain ways: for instance, the SBICs could not hold equity in firms (though the debt could be convertible to equity), and their control over investments was also restricted. Moreover, steps that seem like second nature to venture capitalists—such as offering stock options to employees of the firms—were sharply restricted.

These restrictions of the SBIC program were criticized by knowledgeable observers even before the legislation enabling the funds was enacted. Criticism of the program intensified in the early 1960s, when a large number of SBICs were financed, often with minimal review. The entities receiving charters and loans from the government included some run by inexperienced financiers who undertook lines of business very different from those originally intended by Congress—such as real estate development—and corrupt funds determined to make "sweetheart" financings to dubious businesses run by friends, relatives, and, in a few cases, organized crime. Nine out of ten SBICs violated federal regulations in some way.[5] The SBIC program consequently drew extensive congressional criticism for low financial returns and for fraud and waste. Despite some wavering, the officials responsible for the program (and the executive branch more generally) remained committed to it and resisted calls to dismantle it.

[4] The next four paragraphs draw heavily on Bates (1997) and Noone and Rubel (1965).

[5] Bean (2000), page 56.

Viewed with the benefit of hindsight, however, the legacy of the program from the 1950s and 1960s looks quite different. Though few of today's significant funds began as a part of the SBIC program, it did stimulate the proliferation of many venture-minded institutions in Silicon Valley and Route 128, two of the nation's major high technology centers. These institutions included law firms and accounting groups geared specifically to the needs of entrepreneurial firms. For example, Thomson Reuters VentureXpert, the source of much of the data used in this paper, originated as the SBIC Reporting Service in 1961 and gradually expanded its scope to become the major source of returns data on the entire venture industry. Moreover, some of the United States' most dynamic technology companies—including Apple Computer, Compaq (now part of Hewlett-Packard), and Intel—received support from the SBIC program before they went public. Nonetheless, many have criticized successive administrations for not killing off the SBIC program once the non-government backed venture pool expanded in size during the 1980s and 1990s.

Another antecedent was the Minority Enterprise Small Business Investment Companies (MESBICs), established to alleviate the financing gap believed to be constraining minority business development nationwide. MESBICs, like SBICs, were privately owned investment companies, chartered by the SBA, devoted to investing venture capital and long-term debt, first in black-owned businesses, and then after 1972 to minority entrepreneurs more generally. This program was bitterly criticized for its stifling rules, the inexperience of many fund managers backed, and its low success rate. Despite these limitations, it proved almost impossible even to

modify, notwithstanding the extremely high failure rate of funds. In 1996, Congress ended the issuance of new licenses but allowed existing MESBICs to continue operations.

A more direct antecedent was the numerous community development corporations (CDCs) set up in response to the "War on Poverty" in the 1960s, which sought to alleviate poverty through the application of business principles.[6] The Office of Economic Administration, which was established to oversee and implement the Civil Rights Act of 1964, initially funded many of these institutions under title VIII of that act; later on, many were funded under the Housing and Community Development Act of 1974.

Many of these early CDC-sponsored business ventures were remarkably unsuccessful. The origins of CDCs engaging in venture capital is typically traced back to the decision of one CDC, the Job Start Corporation of London, Kentucky, which began investing in local entrepreneurs in exchange for equity. In 1978, the renamed Kentucky Highlands Investment Corporation formed a venture-specific subsidiary to pursue these activities. The attention generated by the Kentucky fund attracted new actors. A number of new and existing CDCs established funds, often with the backing of the Ford and the John D. and Catherine T. MacArthur foundations.

Beginning in 1992, these two foundations also began backing a trade association of CDVC funds, the Community Development Venture Capital Alliance. This group served as a setting where CDVC funds could compare best practices and address legislative strategy. The

[6] The next four paragraphs are based on Jackson and Lerner (1996), Rubin (2001), http://www.cdvca.org/, and http://www.cdfifund.gov/ (both web-sites accessed on May 2, 2010).

CDVCA also has also managed its own investment vehicle, the Central Fund. The Fund specializes in identifying areas with untapped market potential, investing in rapidly growing businesses across diverse industries.

This activity was also boosted through the establishment of the U.S. Department of Treasury's Community Development Financial Institution (CDFI) Fund, which was established by the Riegle Community Development and Regulatory Improvement Act of 1994. The CDFI Fund promotes CDCs in several ways:[7]

- its CDFI Program directly invests in and supports these financial institutions;
- its New Markets Tax Credit (NMTC) Program, enacted in 2000, provides tax credits to CDCs which enable them to attract investment from the private-sector and reinvest these amounts in low-income communities; and
- its Bank Enterprise Award (BEA) Program provides an incentive to banks to invest in their communities and in other CDFIs.

Since its creation**,** the CDFI Fund has awarded over $1 billion to community development organizations and financial institutions directly; it estimates that it New Markets Tax Credits have attracted or will attract private-sector investments totaling $26 billion. As part of the American Recovery and Reinvestment Act of 2009, the allocation for the New Market Tax Credits was expanded to $5 billion for each of 2008 and 2009. The administration has proposed to continue to operate the program at this enhanced level in subsequent years.

3. **The sample**

[7] In addition the act included a variety of initiatives targeted toward the Native American community.

We use a variety of databases to construct a comprehensive record of venture capital financings, venture funds, and all CDFIs that have done venture capital investments. We first describe the collection of information on the venture capital groups.

We gather information on venture capital financing activity from the Thomson Reuter VentureXpert (formerly Venture Economics) database. The database was started in 1977 and has since been back-filled through the 1960s. It provides information about the dates of venture financings, the investors involved in each financing round, the amounts invested in each round, and the outcome of each venture capital-backed company in the database. In addition, the database has information on the geographic location of each VC firm and investment. For the purposes of this study, we restrict our analysis period to investments made between 1996 and October 2009. We drop investments prior to 1996 due to the very small number of CDVCs active before this period.

We only include offices in the United States because that is where VentureXpert coverage is most comprehensive. We map company and VC firm zip codes to a Combined Statistical Area (CSA), following Chen, Gompers, Kovner, and Lerner (2010). Our use of CSA as the unit of location is driven by the narrow definition of certain MSAs. For example, the cities of Palo Alto/Menlo Park, Berkeley, and San Francisco, CA are located in three different MSAs. On the east coast, New York City is located in a different MSA from nearby cities such as Stamford and Greenwich, Connecticut, where New York area investors often choose to base their operations. Therefore we use CSAs that appropriately assign Palo Alto and San Francisco to one location and similarly assign New York and Greenwich to one location. In cases such as

San Diego, where a city is not located in a CSA, we assign venture capital offices in the city to the appropriate Metropolitan Statistical Area (MSA).

In addition to our venture capital data, we collect state-level information on characteristics related to employment and innovation. Information about the level of educational attainment in a state is from annual editions of the *Statistical Abstract of the United States.* Each state's Gross Product is taken from the Department of Commerce's Bureau of Economic Analysis. To measure the business environment of each state, we obtain information on state marginal income tax rates and long-term capital gains tax rates from the National Bureau of Economic Research's TAXSIM model. Finally, we collect information about local innovation and patenting rates from the U.S. Patent and Trademark Office. This state level information is attributed to each CSA using an average of the rates of the states in any CSA.

We next determine whether the VC firm is a community development venture capital organization. To do this, we employ two sources. First, the CDVCA has maintained a roster of members on its website. We use the current and archived versions of this list (obtained through web.archive.org). Second, the CDFI fund has undertaken periodic surveys of entities receiving CDFI funds. We identify from these surveys all CDFI funds that have made equity investments. We then match these lists of firms against the firms identified in VentureXpert. Of 57 potential CDVCs identified, we match 32 venture capital firms to VentureXpert. 28 of these firms have made US investments tracked by VentureXpert.

We use these data to create several measures of venture capital investment success: first, we observe whether each venture-backed company went public through an IPO or registered for an IPO. We also determine whether the firm encountered another outcome, such as a bankruptcy or an acquisition. Following earlier work by ourselves and others, we define a successful outcome as either an IPO or an acquisition by another company.

Table 1 provides an overview of the sample. The relatively small size of the CDVC sector is apparent. In total, we have 305 investments by 28 CDVCs, as compared to more than 65,000 investments by over 5,500 non-CDVC funds. In the first two panels, several differences between the two types of funds and their investments are statistically significant:

- The CDVCs are more likely to invest in earlier financing rounds, reflecting an orientation towards seed and early-stage investing.
- The firms backed by CDVCs have fewer venture investors participating in the rounds, and have undertaken fewer financing rounds in total. In part, though, this may reflect these firms' relative youth (see below).
- The CDVC-backed firms are substantially less likely to have gone public (1% vs. 13%) or to be successful (18% vs. 33%). Again, the relative youth of these firms must lead us to be cautious in interpreting the results.
- The CDVC-backed investments were likely to occur later than non-CDVC investments even though we only begin the sample in 1996, reflecting the relative youth of the sector.

In the third panel, we turn to the geography of CDVCs and their investments. Looking at the venture firms themselves, we see that CDVC funds are far more likely to be located in a CSA

with a population greater than one million (Large Metro Area)[8] (94% vs. 60% for the non-CDVCs). Their investments are strikingly different. CDVCs seem to shun investing in the San Francisco area (3% vs. 30% for non-CDVC funds) and are more likely to be headquartered outside the ten regions that have historically attracted the most venture capital financing (57% vs. 49% of non-CDVC funds). Non-metropolitan areas, which account for a tiny fraction of non-CDVC fund investments, represent 5% of CDVC funds' investments. CDVC groups are also substantially more likely to invest locally (52% vs. 32%).

Finally, the fourth panel looks at the industry distribution of investments. The three industries that represent the bulk of venture activity—Internet and Computers, Energy, and Biotech and Healthcare—are substantially underrepresented among the CDVCs (together, these three sectors represent 60% of investments by CDVCs, as opposed to 83% by the others). CDVCs are much more likely to invest in such categories as Consumer, Business and Industrial, and Other.

4. **The analysis**

In the analysis, we proceed in three parts. First, we compare CDVC and non-CDVC transactions. Next, we look in depth at what considerations drive some transactions to be more successful than others. Finally, we examine whether investments by and with CDVCs has an effect on the subsequent choices by non-CDVC funds.

A. The nature of CDVC investments

[8] Population as of 2005. Source: http://www.census.gov/popest/metro/files/2009/CSA-EST2009-alldata.csv, accessed September 21, 2010.

In Tables 2 and 3, we examine the characteristics of the CDVC deals. In Table 2, we use all venture capital firm-company pairs as observations and employ a probit analysis to examine which transactions are CDVC deals, where the outcome variable is binary and equal to one if the investment in a company is made by a CDVC. In Table 3, we employ a multinomial logit approach, where we compare transactions in which only CDVCs invest, transactions in which only non-CDVCs invest, as well as those syndicated between both CDVCs and traditional VCs. Each observation in Table 3 is a single company, rather than a VC-company pair. Standard errors are clustered at the VC firm level in all specifications.

Table 2 reports that once year fixed effects are controlled for, community development venture firms are one percentage point (approximately 10%) less likely to invest in Biotech and Communications and Electronics transactions. The results for Internet and Computer are similar; if a little less consistent (all comparisons are done relative to the "other" category). The community development fund deals are far more likely to be in a non-metropolitan region, as well as in regions with little prior venture activity. The latter measure is captured by summing the previous VC investments in the region at the time of investment and dividing by the total number of VC investments in any region at the time of investment. The CDVC investments are also far more likely to be at earlier stages (those in the seed or expansion phase, as opposed to those that are later stage, LBO, other or unknown). The CDVC deals, even after controlling for the round of the investments, are associated with smaller venture rounds as well (though are interpretation here must be cautious due to the fact that investment size is determined in parallel with the decision to finance the firm).

In Table 3, we look at alternative investor mixtures. We employ the investments by non-CDVC firms as the baseline and present exponentiated coefficients that can be interpreted as odds ratios. Coefficients less than one mean that there is a lower chance of that type of investor investing in that category than a non-CDVC. Columns 1 through 3 show that CDVC funds investing alone are far less likely to back numerous categories that are mainstays of traditional venture capital funds, including Internet and Computer, Communications, Energy, and Biotech and Health (again, all comparisons are done relative to the "Other" industry category). Again, these investments are far more likely to be outside of large metropolitan regions and (more weakly) in those with little venture activity. These transactions are concentrated in less developed companies and earlier financing rounds.

Turning to the co-investments between CDVCs and traditional venture organizations, we see in columns 4 through 6 that these share many of the geographic characteristics of the sole CDVC investments. These joint deals tend to be concentrated outside of large metropolitan areas and in areas with less venture activity. They also tend to be disproportionately early-stage ones. The industry mixture, however, resembles much more closely the traditional distribution, with the exception of an overrepresentation of energy transactions.

B. The success of CDVC investments

We next turn to the success of these investments. Tables 4 and 5 employ a probit specification, where the dependent variable "success" takes on the value one if the company ultimately went public or was acquired. Each venture capital firm-company pair is used as an observation, with standard errors clustered on the venture capital firm level. In addition to

specifications which include all investments, we run a separate specification including only investments made prior to 2005, in order to ensure that the portfolio companies have had enough to achieve a liquidity event such as an initial public offering or merger. In each specification, we employ fixed effects for the year of the observation.

The regression coefficients highlight the challenges that CDVCs face. The industries which are associated with the highest success rates—Internet and Computers, Communications and Electronics, and Biotech and Health—tend to be ones that the community development funds shy away from. Early-stage and expansion transactions, companies where the first investment is in an earlier round and those in regions with less venture activity are less likely to be successful, all else equal. Once again, these are ones where CDVCs disproportionately invest. Similarly, less experienced venture capital groups have less successful investments.

Even after controlling for this challenging investment mixture, however, investments by CDVCs seem to substantially underperform on a financial basis. These investments are less likely to have a successful exit across all the specifications. The results are even more dramatic if we consider only IPOs as a success metric. Of the 55 successful CDVC investments, only three of them went public. The magnitude of the coefficient implies that for a first-stage investment in an industrial firm made in 2001, a CDFI is 11.1 percentage points less likely to be successful than a non-CDFI (half as likely) (specification 3).

In Table 5, we examine the impact of the presence of both CDVC and non-CDVC investors. While we have very limited statistical significance, the negative relationship between

success and CDVCs is driven by investments in which CDVCs have no non-CDVC co-investor. The coefficient on a dummy variable equal to one if any investor is a CDFI is negative, but the coefficient on the interaction of CDVC and a non-CDVC investor is positive. This is consistent with Brander, et al. (2010), who find negative results when government sponsored VCs do not invest with a sufficiently large number of non-government sponsored VCs.

C. The influence of CDVC co-investments

So far, we have just examined the nature of private returns from CDVC funds. Brander, et al. (2010) employ a similar measure to assess the success of government-sponsored venture funds. They also employ a second performance measure, patent production, which they use to measure innovation. While patents are clearly also correlated with private returns, these performance measures may also reflect benefits to other parties through knowledge spillovers and the well-documented relationship between innovation and economic growth.

Unfortunately, it is much less reasonable here to examine patents as a measure of industry performance, given the underrepresentation of knowledge-intensive sectors in this sample relative to venture capital as a whole. It is not clear that patents will be as meaningful a measure of innovation in this setting.

We instead look at another measure of the broader impact of these funds: whether investments with and by a CDVC is associated with subsequent shift in behavior by traditional funds. While causation might be difficult to infer here—it may be that the reason traditional VC funds co-invest with CDVCs is because they are in the process of changing their investment

strategy in any case—the experience of working with a specialist in less popular categories or geographic regions of venture investing might introduce them to investment opportunities there. Chen et al. (2010) document the concentration of VC in New York, San Francisco and Boston but find that VC's may have a lower hurdle rate after they have already invested in a region. CDVCs may thus help to bring VCs to new regions.

Table 6 looks at this issue by comparing the investments made by traditional venture groups in the five years before and after co-investing with a community development fund. We employ fixed effects for each venture group (as well as for the year of the investment) to control for differences in groups' overall pattern of investments. The analysis provides some evidence of a shift in behavior after co-investment: the traditional groups are more likely to invest in regions with less venture activity. Once we look at reasonably seasoned deals, the success rates of the transaction before and after the co-investments do not significantly differ. Results are similar when the sample is limited to the 2.5 years before and after the first CDVC co-investment. Once again, our interpretation of these patterns must be cautious due to causality concerns.

D. The influence of CDVC investments on traditional VCs

While we do not see a direct impact of co-investing with VCs, it is possible that the presence of CDVCs in regions typically underserved by traditional VCs may influence other VCs to open offices or consider investments in those areas, even if they did not invest directly with the CDVC. In our previous work on the geographic clustering of VCs (Chen, et al. (2010)), we find that VC firms locate in regions with high success rates of VC-backed investments. This suggests that VC firms are drawn to regions with an existing VC presence, perhaps because there

are knowledge spillovers from other VC-backed companies or because their travel costs may be reduced when making multiple investments in a region.

In Tables 7 and 8, we use as the dependent variable the number of non-CDVC firms and investments in a CSA, estimating all models at the CSA-Year level. We restrict the analysis to CSAs where at least one venture backed company existed between 1996 and 2006. This is broader than the analysis in Chen, et al. (2010), to allow for the broadest sample set of possible VC locations. Thus in some CSA-Years, the number of offices can equal zero.

The dependent variable in Table 7 is the log of one plus either the total number of non-CDVC firms in a CSA-Year (first five columns), or the number of new non-CDVC VC firms (next five columns). Firms are identified as new firms based on the year of their first investment in the VentureXpert database. The dependent variable in Table 8 is the log of one plus the number of non-CDVC investments. We estimate the dependent variable as the log of one plus the variable of interest to allow the measure to be defined in cases where the variable is zero. All standard errors are clustered at the CSA level.

The key explanatory variable is the number of CDVC investments in the past 5 years in the CSA or the success rate of CDVC investments in the past 5 years in the CSA. Since both of these may be driven by the unobserved quality of the opportunities in a CSA, we control for this with the number of traditional VC investments in the CSA or with a dummy variable equal to one for the top three VC CSAs (New York, Boston and San Francisco).

We also include controls for local characteristics which may be associated with venture capital investments. Again following Chen, et al. (2010), these controls include the log of gross product per capita, the marginal income tax rate, and the long-term capital gains tax rate in the year prior to the investment. In order to capture an area's potential for innovation, we control for the percentage of population with a college degree in that CSA, as well as the number of patents per capita issued in the state in the previous year. When CSAs include multiple states we calculate an equally weighted average of the rates in each state. We include year fixed effects to control for changes in the supply of venture capital and investment opportunities.

Tables 7 and 8 suggest that there may be a positive impact of CDVCs in attracting traditional VCs and their investments to the CSA. Even after controlling for investment opportunities in a region, the number of non-CDVC VC firms and the incremental change in VC firms is significantly positively related to the number of CDVC investments. An additional CDVC investment leads to an incremental 0.06 VC firms in a CSA (Table 7, column (7)). While the level of statistical significance is lower, the magnitude of the coefficient on a CDVC is not significantly smaller than the coefficient on a VC investment, suggesting that CDVC investments have an equal likelihood of attracting VC firms to a region. The coefficient on the success rate of CDVCs in a region is also positive, although not statistically significant. Similarly, as shown in Table 8, the number of CDVC investments is positively related to the number of non-CDVC investments in a region, although the coefficient is not statistically significant after controlling for the number of non-CDVC investments.

5. **Conclusions**

In conclusion, it does not seem that an investor in a CDVC can expect to do well by doing good. CDVC investments are less likely to go public or be acquired than are comparable investments by traditional VCs, even after controlling for lower average success rates in the types of industries and locations in which CDVCs invest.

When viewed through a broader lens of all stakeholders, however, CDVCs may have a positive return to their community. They invest in industries that are less likely to receive traditional VC capital and in regions without many traditional VCs. CDVC investments appear to attract VC firms and VC investments to regions in which they invest, even though they do not change the behavior of their direct co-investors.

There are many unanswered questions about CDVCs. We will mention three. First, to what extent do CDVC investors make use of the crucial governance tools the venture capitalists employ, such as convertible preferred stock and the right to replace key management (Kaplan and Stromberg (2003))? Second, does the growth of these investments in employment and sales mirror those of traditional venture investments (Puri and Zarutskie (2008))? Finally, does the outcome of CDVC investments vary with the characteristics of the CDVCs, or the nature of the funders (e.g., governments vs. foundations)? These and related questions would reward careful research.

References

Ajay Agrawal, Devesh Kapur, and John McHale, "How do spatial and social proximity influence knowledge flows? Evidence from patent data," *Journal of Urban Economics* 64 (2008): 258-269

Timothy Bates, "The Minority Enterprise Small Business Investment Company Program: Institutionalizing a nonviable minority business assistance infrastructure," *Urban Affairs Review* 32 (1997): 683–703.

Jonathan J. Bean, *Big Government and Affirmative Action: The Scandalous History of the Small Business Administration* (Lexington: University Press of Kentucky, 2001).

James Brander, Qianqian Du, and Thomas F. Hellmann, "The effects of government-sponsored venture capital: International Evidence," Unpublished working paper, University of British Columbia, 2010.

Henry Chen, Paul Gompers, Anna Kovner and Josh Lerner, "Buy local? The geography of successful and unsuccessful venture capital expansion," *Journal of Urban Economics* 67 (2010): 90-102.

Richard Coopey and Donald Clarke, *3i: Fifty Years Investing in Industry* (Oxford: Oxford University Press, 1995).

Paul Gompers, Anna Kovner, and Josh Lerner, "Specialization and success: Evidence from venture capital," *Journal of Economics and Management Strategy*, 18 (2009): 817-844.

Paul Gompers and Josh Lerner, *The Venture Capital Cycle* 2nd edition (Cambridge: MIT Press, 2004).

Felda Hardymon, Ann Leamon, and Josh Lerner, "3i Group PLC," Harvard Business School case no. 9-803-020, 2003.

Eric Jackson and Josh Lerner, "Northeast Ventures," Harvard Business School case no. 9-296-093, 1996.

Steven Kaplan and Per Strömberg, "Financial contracting theory meets the real world: Evidence from venture capital contracts," *Review of Economic Studies* 70 (2003): 281-315.

Samuel Kortum, and Josh Lerner, "Assessing the contribution of venture capital to innovation," *RAND Journal of Economics* 31 (2000): 674–92.

Josh Lerner, "The government as venture capitalist: The long-run effects of the SBIR Program," *Journal of Business* 72 (1999): 285-318.

Josh Lerner, *Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed--and What to Do About It* (Princeton: Princeton University Press, 2009).

Marcos A. Mollica, and Luigi Zingales, "The impact of venture capital on innovation and the creation of new businesses," Unpublished working paper, University of Chicago, 2007.

C. M. Noone and S. M. Rubel, *SBICs: Pioneers in Organized Venture Capital* (Chicago: Capital Publishing, 1970).

Manju Puri, and Rebecca Zarutskie, "On the lifecycle dynamics of venture-capital- and non-venture-capital-financed firms," Unpublished working paper, Center for Economic Studies, 2008.

Julia S. Rubin, "Community development venture capital: A double-bottom line approach to poverty alleviation," *Changing Financing Markets and Community Development: Proceedings of the Second Federal Reserve Community Affairs Conference* (Washington, DC: Federal Reserve System, 2001).

"3i, fifty years of growth: 1945–1995," Unpublished working paper, 3i, 1995.

Scott J. Wallsten, "The Small Business Innovation Research program: Encouraging technological Innovation and Commercialization in Small Firms?," *Rand Journal of Economics*, 31 (2000): 82-100.

Lynne G. Zucker, L., Michael R. Darby, and Marilynn Brewer, "Intellectual human capital and the birth of U.S. biotechnology enterprises," *American Economic Review* 88 (1998): 290-306

Table 1: Summary Statistics

Panel A: Characteristics of VCs and CDVC firms

	N	Mean		SD	25%	50%	75%
VC Firms							
Total Investments	5,570	16.19		41.83	1	4	13
Success	5,570	0.33		0.33	0.0000	0.2857	0.5208
CDVC Affiliated VC Firms							
Total Investments	28	11.54		11.59	4	8	16
Success	28	0.18	**	0.20	0.0000	0.1339	0.3125

Panel B: Characteristics of VCs and CDVC firms' investments

	N	Mean		SD	25%	50%	75%
VC Firms ' Investments							
Total Raised in Round (000s)	31,197	17,957.1		85,448.6	3,000.0	7,300.0	17,000.0
Round Number	65,285	2.35		1.95	1	2	3
Number of VCs	65,285	5.80		4.62	2	4	8
Total Rounds	65,285	3.77		2.61	2	3	5
Success	65,285	0.3637		0.4811	0	0	1
IPO	65,285	0.0914		0.2882	0	0	0
Year	65,285	2002		4	1999	2002	2006
CDVC Affiliated VC Firms' Investments							
Total Raised in Round (000s)	104	5,141.0		12,717.8	269.2	1,200.0	4,375.0
Round Number	305	1.68	***	1.34	1	1	2
Number of VCs	305	3.77	***	3.12	2	3	5
Total Rounds	305	2.83	***	2.20	1	2	4
Success	305	0.1803	***	0.3851	0	0	0
IPO	305	0.0098	***	0.0989	0	0	0
Year	305	2004	***	4	2001	2004	2007

Panel C: Locations of VC Firms and Investments

	Firms			Investments		
	VC Firms	CDVCs		VC Firms	CDVCs	
San Francisco	0.1260	0.0357		0.2994	0.0328	***
Boston	0.0560	0.0714		0.1075	0.0721	**
New York	0.1492	0.0714		0.0878	0.1508	***
TopTen VC Area	0.5056	0.4286		0.7289	0.4131	***
Large Metropolitan Area	0.9625	0.5357	***	0.9390	0.5967	***
Same CMSA as Firm				0.3291	0.5246	***
N	5,570	28		65,285	305	

Panel D: Industry of Investments

	VC Firms	CDVCs	
Internet and computers	0.4741	0.3902	***
Communications and electronics	0.1679	0.0852	***
Business and Industrial	0.0274	0.0787	***
Consumer	0.0519	0.1475	***
Energy	0.0207	0.0623	***
Biotech and healthcare	0.1881	0.1246	***
Financial services	0.0216	0.0262	
Business services	0.0225	0.0262	
All other	0.0258	0.0590	***
N	65,285	305	

Sample consists of 5,570 traditional VCs and 28 CDVCs in existence between 1996 and 2009. *Success* equals 1 for investments that led to an Initial Public Offering (IPO) or were merged or acquired. ***, **, * indicate differences are statistically significant at the 1%, 5% and 10% level, respectively. Panel A consists of one observation per VC firm. Panel B consists of one observation per VC firm/ investment. The first two column of Panel C consists of one observation per VC firm and the final two columns of Panel C consist of one observation per VC firm/ investment. Panel D consists of one observation per VC firm/ investment.

Table 2: Characteristics of CDVC Investments

	(1) Coeff.		(2) Coeff.		(3) Coeff.		(4) Coeff.		(5) Coeff.	
Internet and computers	-0.3144	***	-0.1052		-0.2733	*	-0.2425	*	-0.3958	
	(3.27)		*(0.73)*		*(1.87)*		*(1.67)*		*(1.38)*	
Communications and Electronics	-0.5025	***	-0.3169	***	-0.4684	***	-0.4252	***	-0.8055	***
	(4.53)		*(2.97)*		*(4.62)*		*(4.20)*		*(3.47)*	
Industrial	0.0816		0.0542		0.0458		0.0453		-0.0214	
	(0.68)		*(0.58)*		*(0.47)*		*(0.47)*		*(0.10)*	
Consumer	0.1121		0.1913		0.1370		0.1457		-0.1612	
	(1.05)		*(1.25)*		*(0.90)*		*(0.96)*		*(0.54)*	
Energy	0.0717		0.0973		-0.0046		0.0158		-0.3829	
	(0.57)		*(0.51)*		*(0.02)*		*(0.08)*		*(0.93)*	
Biotech and healthcare	-0.4471	***	-0.2687	**	-0.4354	***	-0.3858	***	-0.6417	***
	(4.27)		*(2.38)*		*(4.07)*		*(3.76)*		*(2.73)*	
Financial services	-0.2143		-0.0711		-0.1046		-0.1053		-0.2934	
	(1.40)		*(0.35)*		*(0.52)*		*(0.52)*		*(0.62)*	
Business services	-0.2135		-0.0995		-0.1844		-0.1861		-0.3184	
	(1.40)		*(0.62)*		*(1.14)*		*(1.13)*		*(1.07)*	
Large metro dummy			-0.6375	***	-0.6374	***	-0.6265	***	-0.7300	***
			(5.04)		*(4.97)*		*(4.92)*		*(3.93)*	
Adj. previous companies			-1.8450	***	-1.9751	***	-1.9080	***	-1.9297	***
in region			*(2.89)*		*(3.01)*		*(3.01)*		*(2.83)*	
Early stage					0.4375	***	0.3876	***	0.1109	
					(5.80)		*(4.88)*		*(1.04)*	
Expansion stage					0.4479	***	0.4483	***	0.2546	**
					(5.97)		*(6.00)*		*(1.97)*	
Number of VC firms							-0.0080		0.0198	*
							(0.65)		*(1.72)*	
Round number							-0.0359	**	-0.0398	
							(1.96)		*(1.31)*	
Log total raised in round									-0.1929	***
									(4.31)	
Year fixed effects:	yes		yes		yes		yes		yes	
Pseudo-R-squared	0.0483		0.1210		0.1370		0.1390		0.2050	
Log Likelihood	-1,849		-1,708		-1,676		-1,672		-554	
Chi-squared	187.5		428.9		830.2		851.7		612.7	
Observations	65,590		65,590		65,590		65,590		31,300	

Sample consists of all investments of 5,570 traditional VCs and 28 CDVCs in existence between 1996 and 2009. Specifications are at the VC/investment level and are probit specifications in which the dependent variable is equal to one if VC is a CDVC. *Early stage* investments are investments in portfolio companies that are developing their product or have begun initial marketing, manufacturing, and sales activities for their product. *Expansion stage* investments are companies that have product shipping and have begun expanding their business. *Round number* is the number round in which the VC firm's first investment was made. *Number of VC firms* is the log of the number of VC firms investing in that company. *Log total raised in round* is the log of the total amount raised in the VC firm's initial participation round. All specifications include year fixed effects. Robust t-statistics are in parentheses

below coefficient estimates. Standard errors are robust and clustered at the VC firm level. ***, **, * indicate statistical significance at the 1%, 5% and 10% level, respectively.

Table 3: Characteristics of investments made by non-CDVCs in deals with CDVCs

	Only CDVC			CDVC and non-CDVC co-investors		
	(1)	(2)	(3)	(4)	(5)	(6)
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
Internet and computers	0.4469 ***	0.8453	0.4547 ***	1.2934	1.9837	1.1103
	(2.85)	*(0.60)*	*(2.94)*	*(0.54)*	*(1.44)*	*(0.24)*
Communications	0.3049 ***	0.4812 **	0.2746 ***	1.0207	1.5182	0.8739
	(2.98)	*(2.04)*	*(3.43)*	*(0.04)*	*(0.85)*	*(0.29)*
Industrial	1.5562 *	1.2013	1.2157	1.3919	1.2371	1.1858
	(1.93)	*(0.75)*	*(0.76)*	*(0.56)*	*(0.36)*	*(0.29)*
Consumer	1.3620	1.5484	1.3831	1.1854	1.2996	1.0458
	(0.79)	*(1.07)*	*(0.81)*	*(0.30)*	*(0.47)*	*(0.08)*
Energy	0.5374 *	0.4694 **	0.3393 ***	4.5957 ***	4.4007 ***	3.0806 **
	(1.71)	*(2.00)*	*(2.67)*	*(2.92)*	*(2.81)*	*(2.19)*
Biotech and health	0.2461 ***	0.3643 ***	0.2029 ***	1.4470	1.9267	1.0918
	(4.80)	*(3.18)*	*(4.67)*	*(0.80)*	*(1.43)*	*(0.20)*
Financial services	0.4857	0.9037	0.8020	0.7113	0.9797	0.8149
	(1.17)	*(0.15)*	*(0.34)*	*(0.46)*	*(0.03)*	*(0.28)*
Business services	0.7877	1.0497	0.7583	0.6860	0.8576	0.6218
	(0.48)	*(0.09)*	*(0.51)*	*(0.52)*	*(0.21)*	*(0.66)*
Large metro dummy		0.1218 ***	0.1185 ***		0.3038 ***	0.2868 ***
		(3.92)	*(3.84)*		*(4.80)*	*(4.96)*
Adj. previous companies		0.0083	0.0041		0.0185 ***	0.0122 ***
in region		*(1.05)*	*(1.17)*		*(4.29)*	*(4.78)*
Early stage			4.0260 ***			4.0827 ***
			(5.05)			*(4.21)*
Expansion stage			6.0949 ***			4.2368 ***
			(5.61)			*(4.24)*
Round number			0.3357 **			1.1198
			(2.26)			*(0.92)*
Log total raised in round						
Year fixed effects:	yes	yes	yes	yes	yes	yes
Observations	23,499	23,499	23,499	23,499	23,499	23,499
Chi-squared	82,273	88,091	87,673	82,273	88,091	87,673
Pseudo R-squared	0.0505	0.1120	0.1380	0.0505	0.1120	0.1380

Sample consists of all investments of 5,570 traditional VCs and 28 CDVCs in existence between 1996 and 2009. Specifications are at the VC/investment level and are probit specifications in which the dependent variable is equal to one in specifications (1) through (3) if all VC investors are CDVCs and in specifications (4) through (6) if any investor is a CDVC. *Early stage* investments are investments in portfolio companies that are developing their product or have begun initial marketing, manufacturing, and sales activities for their product. *Expansion stage* investments are companies that have product shipping and have begun expanding their business. *Round number* is the number round in which the VC firm's first investment was made. *Number of VC firms* is the log of the number of VC firms investing in that company. *Log total raised in round* is the log of the total amount raised in the VC firm's initial participation round. All specifications include year fixed effects. Robust t-statistics are in parentheses below coefficient estimates. Standard errors are robust and clustered at the VC firm level. ***, **, * indicate statistical significance at the 1%, 5% and 10% level, respectively.

Table 4: CDVC Performance

	(1) Full Sample Coeff.		(2) Full Sample Coeff.		(3) Full Sample Coeff.		(4) Full Sample Coeff.		(5) Full Sample Coeff.		(6) Post-2005 Coeff.	
CDVC Dummy	**-0.4860**	***	**-0.4126**	***	**-0.3405**	***	**-0.3238**	***	**-0.3021**	***	**-0.4000**	***
	(4.75)		***(4.28)***		***(3.54)***		***(3.39)***		***(3.14)***		***(3.54)***	
Internet and computers			0.3044	***	0.3529	***	0.3350	***	0.3274	***	0.4851	***
			(6.67)		*(7.87)*		*(7.44)*		*(7.24)*		*(8.07)*	
Communications			0.2774	***	0.3005	***	0.2794	***	0.2702	***	0.4245	***
			(6.02)		*(6.66)*		*(6.17)*		*(5.94)*		*(7.00)*	
Industrial			-0.1242	**	-0.1440	**	-0.1449	**	-0.1448	**	-0.0971	
			(2.11)		*(2.46)*		*(2.47)*		*(2.46)*		*(1.26)*	
Consumer			-0.0497		-0.0435		-0.0485		-0.0499		0.0819	
			(1.00)		*(0.88)*		*(0.98)*		*(1.00)*		*(1.27)*	
Energy			0.0861		0.1447	**	0.1432	**	0.1418	**	0.2619	***
			(1.32)		*(2.23)*		*(2.21)*		*(2.18)*		*(2.89)*	
Biotech and health			0.2861	***	0.3010	***	0.2910	***	0.2836	***	0.4440	***
			(5.96)		*(6.37)*		*(6.16)*		*(5.98)*		*(7.15)*	
Financial services			-0.0606		-0.0496		-0.0557		-0.0619		0.0405	
			(0.88)		*(0.71)*		*(0.80)*		*(0.88)*		*(0.50)*	
Business services			0.0798		0.1349	**	0.1278	**	0.1250	**	0.2787	***
			(1.35)		*(2.29)*		*(2.16)*		*(2.11)*		*(3.58)*	
Early stage					-0.3765	***	-0.3813	***	-0.3852	***	-0.3645	***
					(17.98)		*(18.27)*		*(18.64)*		*(14.37)*	
Expansion stage					-0.1608	***	-0.1646	***	-0.1654	***	-0.1577	***
					(8.73)		*(8.92)*		*(9.03)*		*(7.01)*	
Round number					0.0646	***	0.0629	***	0.0635	***	0.0637	***
					(18.05)		*(17.62)*		*(17.75)*		*(14.11)*	
Large metro dummy							-0.0012		-0.0017		-0.0516	
							(0.04)		*(0.06)*		*(1.27)*	
Adj. previous companies in region							0.2454	***	0.2217	***	0.2265	***
							(4.80)		*(4.36)*		*(3.91)*	
Log of VC firm experience									0.0196	***		
									(4.30)			
Year fixed effects:	yes		yes		yes		yes		yes		yes	
Pseudo-R-squared	0.1590		0.1630		0.1830		0.1840		0.1840		0.0529	
Log Likelihood	-36,155		-35,951		-35,083		-35,069		-35,052		-28,402	
Chi-squared	7,105		7,567		9,492		9,560		9,579		2,592	
Observations	65,590		65,590		65,590		65,590		65,590		43,263	

Sample consists of all investments of 5,570 traditional VCs and 28 CDVCs in existence between 1996 and 2009. Specification (6) includes only investments made before 2005. Specifications are at the VC/investment level and are probit specifications in which the dependent variable is equal to one if the company went public or was acquired. *Early stage* investments are investments in portfolio companies that are developing their product or have begun initial marketing, manufacturing, and sales activities for their product. *Expansion stage* investments are companies

that have product shipping and have begun expanding their business. *Round number* is the number round in which the VC firm's first investment was made. All specifications include year fixed effects. *Adjusted previous companies in area* is equal to the number of previous investments in a region divided by the total number of venture investments to date. *Log of VC firm experience* is equal to the log of one plus the number of previous investments made by the venture capital firm. Robust t-statistics are in parentheses below coefficient estimates. Standard errors are robust and clustered at the VC firm level. ***, **, * indicate statistical significance at the 1%, 5% and 10% level, respectively.

Table 5: Performance of Investments with non-CDVC co-investors

	(1) Full Sample Coeff.		(2) Full Sample Coeff.		(3) Full Sample Coeff.		(4) Full Sample Coeff.		(5) Full Sample Coeff.		(6) Post-2005 Coeff.	
Any CDVC	**-0.6279**	***	**-0.5519**	***	**-0.4758**	**	**-0.4200**	**	**-0.3941**	**	**-0.4955**	**
	(3.26)		***(2.87)***		***(2.45)***		***(2.15)***		***(2.02)***		***(2.15)***	
CDVC and non-CDVC	**0.4682**	**	**0.3898**	*	**0.3493**		**0.3188**		**0.3061**		**0.3626**	
	(2.10)		***(1.75)***		***(1.55)***		***(1.41)***		***(1.36)***		***(1.39)***	
Internet and computers			0.1686	***	0.3491	***	0.3325	***	0.3251	***	0.4219	***
			(3.23)		*(6.45)*		*(6.12)*		*(5.98)*		*(5.72)*	
Communications			0.1624	***	0.3313	***	0.3159	***	0.3062	***	0.4134	***
			(2.90)		*(5.74)*		*(5.45)*		*(5.27)*		*(5.37)*	
Industrial			-0.1440	**	-0.1504	**	-0.1469	**	-0.1467	**	-0.1600	
			(2.02)		*(2.10)*		*(2.05)*		*(2.04)*		*(1.62)*	
Consumer			-0.0963		-0.0593		-0.0642		-0.0656		-0.0154	
			(1.58)		*(0.97)*		*(1.05)*		*(1.07)*		*(0.19)*	
Energy			0.1404	*	0.2236	***	0.2279	***	0.2267	***	0.3127	***
			(1.80)		*(2.84)*		*(2.90)*		*(2.88)*		*(2.85)*	
Biotech and health			0.0467		0.2108	***	0.2006	***	0.1936	***	0.3026	***
			(0.84)		*(3.67)*		*(3.49)*		*(3.36)*		*(3.91)*	
Financial services			-0.0849		-0.0642		-0.0794		-0.0898		-0.0238	
			(1.15)		*(0.87)*		*(1.07)*		*(1.21)*		*(0.24)*	
Business services			0.0533		0.1386	*	0.1284	*	0.1265	*	0.2630	***
			(0.74)		*(1.92)*		*(1.78)*		*(1.75)*		*(2.75)*	
Early stage (Earliest VC round)					-0.3938	***	-0.4082	***	-0.4148	***	-0.3936	***
					(13.11)		*(13.39)*		*(13.58)*		*(10.29)*	
Expansion stage (Earliest VC round)					-0.3034	***	-0.3127	***	-0.3154	***	-0.3133	***
					(9.32)		*(9.55)*		*(9.63)*		*(7.82)*	
Round number (Earliest VC round)					0.1293	***	0.1277	***	0.1280	***	0.1155	***
					(8.49)		*(8.37)*		*(8.39)*		*(5.97)*	
Non metro dummy							0.0958	**	0.0937	**	0.0536	
							(2.45)		*(2.39)*		*(1.14)*	
Adj. previous companies in region							0.1438		0.0966		0.1047	
							(1.60)		*(1.07)*		*(1.05)*	
Log of mean VC firm experience									0.0294	***		
									(4.06)			
Year fixed effects:	yes		yes		yes		yes		yes		yes	
Pseudo-R-squared	0.1630		0.1670		0.1770		0.1770		0.1780		0.0501	
Log Likelihood	-11,543		-11,494		-11,352		-11,347		-11,339		-9,009	
Chi-squared	4,495		4,593		4,878		4,888		4,905		950	
Observations	23,499		23,499		23,499		23,499		23,499		14,033	

Sample consists of all investments of 5,570 traditional VCs and 28 CDVCs in existence between 1996 and 2009. Specification (6) includes only investments made before 2005. Specifications are at the investment level and are probit specifications in which the dependent variable is equal to one if the company went public or was acquired. *Any CDVC* is a binary variable equal to one if there is any CDVC investor in a company. *CDVC and non-CDVC* is a binary variable equal to one if there are both CDVC and non-CDVC investors in a company. *Early stage* investments are investments in portfolio companies that are developing their product or have begun initial marketing, manufacturing, and sales activities for their product. *Expansion stage* investments are companies that have product shipping and have begun expanding their business. *Round number* is the number round in which the VC firm's first investment was made. Stage and round variables are calculated as of the earliest VC investment in a company. All specifications include year fixed effects. *Adjusted previous companies in area* is equal to the number of previous investments in a region divided by the total number of venture investments to date. *Log of VC firm experience* is equal to the log of one plus the number of previous investments made by the venture capital firm. Robust t-statistics are in parentheses below coefficient estimates. Standard errors are robust and clustered at the VC firm level. ***, **, * indicate statistical significance at the 1%, 5% and 10% level, respectively.

Table 6: Impact on CDFI co-investors

Dependent Variable	(1) Adj. previous companies in region	(2) Large Metro Dummy	(3) Success	(4) Success (pre-2005 only)
Post CDFI	-0.0040 **	-0.0035	-0.0108	-0.0059
	(1.97)	*(0.81)*	*(1.28)*	*(0.49)*
Fixed effects:				
VC Firm	yes	yes	yes	yes
Year	yes	yes	yes	yes
Investment characteristics	no	no	yes	yes
VC Firm characteristics	no	no	yes	yes
Adj. R-squared	0.3499	0.2701	0.2858	0.1784
Observations	65,285	65,285	65,285	43,089

Sample consists of all investments of 5,570 traditional VCs in existence between 1996 and 2009. Specification (4) includes only investments made before 2005. Specifications are OLS specifications, where the dependent variable is: *Adjusted previous companies in area* is equal to the number of previous investments in a region divided by the total number of venture investments to date. *Large Metro Dummy* is a dummy variable equal to 1 if the CSA has a 2005 population greater than 1 million, *Success* is equal to one if the company went public or was acquired. All specifications include VC firm and year fixed effects. Investment characteristics include stage of investment, round number and industry of investment. VC firm characteristics include experience and age. *Log of Post-CDVC* is a dummy variable equal to one for all investments made by a non-CDVC VC firm subsequent to its first co-investment with a CDVC. Robust t-statistics are in parentheses below coefficient estimates. Standard errors are robust and clustered at the VC firm level. ***, **, * indicate statistical significance at the 1%, 5% and 10% level, respectively.

Table 7: Regional Impact of CDVCs on other VC firms

	Log Number of non-CDVC VC firms					Log Number of New Non-CDVC VC firms				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
Log number of CDVC investments,	1.1134 ***	0.2843 **	0.7232 ***			0.6217 ***	0.2072 *	0.3354 ***		
past 5 years	*(5.54)*	*(2.19)*	*(3.99)*			*(4.38)*	*(1.89)*	*(3.40)*		
Log number of VC investments,		0.4035 ***					0.2017 ***			
past 5 years		*(17.66)*					*(10.70)*			
Top three VC area			3.7459 ***					2.7481 ***		
			(9.58)					*(11.85)*		
Log GDP per capita	0.4433	0.4245 ***	0.4467	0.5407 *	0.5733 *	0.2842 *	0.2748 **	0.2867	0.3371 *	0.3508 *
	(1.54)	*(2.82)*	*(1.50)*	*(1.68)*	*(1.88)*	*(1.68)*	*(2.43)*	*(1.64)*	*(1.74)*	*(1.86)*
Percent of population with college	0.0059	-0.0044	0.0026	0.0065	0.0037	0.0016	-0.0036	-0.0008	0.0020	0.0007
degree or higher	*(0.63)*	*(0.95)*	*(0.29)*	*(0.66)*	*(0.41)*	*(0.33)*	*(1.20)*	*(0.19)*	*(0.38)*	*(0.15)*
Log patents	0.0299	0.0049	0.0196	0.0285	0.0252	0.0200	0.0075	0.0124	0.0191	0.0177
	(1.54)	*(0.65)*	*(1.26)*	*(1.47)*	*(1.37)*	*(1.63)*	*(1.19)*	*(1.32)*	*(1.56)*	*(1.50)*
State long-term capital gains tax	-0.0030	0.0099	-0.0059	-0.0077	-0.0052	-0.0013	0.0051	-0.0034	-0.0041	-0.0031
rate	*(0.21)*	*(1.39)*	*(0.43)*	*(0.54)*	*(0.42)*	*(0.22)*	*(1.10)*	*(0.61)*	*(0.67)*	*(0.56)*
State income tax rate	-0.0088	-0.0051	-0.0051	-0.0037	-0.0007	-0.0043	-0.0024	-0.0016	-0.0011	0.0004
	(0.53)	*(0.61)*	*(0.31)*	*(0.22)*	*(0.05)*	*(0.60)*	*(0.45)*	*(0.23)*	*(0.15)*	*(0.06)*
CDVC success rate, past 5 years				0.9249	0.7538				0.5709	0.4845
				(1.52)	*(1.24)*				*(1.47)*	*(1.25)*
No CDVC track record				-0.9488 ***	-0.8065 ***				-0.4833 ***	-0.4247 ***
				(3.96)	*(3.43)*				*(3.51)*	*(3.13)*
VC success rate, past 5 years					0.3307 ***					0.1674 ***
					(4.46)					*(4.26)*
No VC track record					-0.2928 ***					-0.1193 ***
					(6.81)					*(5.55)*
Year fixed effects:	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R-squared	0.2202	0.7359	0.3437	0.1597	0.2361	0.1987	0.5498	0.3797	0.1405	0.1825
Observations	4,736	4,736	4,736	4,736	4,736	4,736	4,736	4,736	4,736	4,736

The dependent variable is the natural logarithm of the number of non CDVC venture capital firms in the CSA plus one receiving an initial investment in the current year. Geographic locations are assigned at the Combined Statistical Area (CSA) level. In cases where a city is not located in a CSA, we assign venture capital offices in the city to the appropriate Metropolitan Statistical Area (MSA). *Log Number of CDVC investments* is the logarithm of the number of CDVC–backed portfolio companies in the CSA plus one receiving an initial investment in past five years. *Log Number of VC investments* is the logarithm of the number of non-CDVC VC–backed portfolio companies in the CSA plus one receiving an initial investment in past five years. *Top Three VC area* is equal to one if the company is in the Boston, New York of San Francisco CSAs. *CDVC Success rate,*

past five years measures the percentage of all CDVC investments in the CSA over the past five years that led to an Initial Public Offering or were merged or acquired. *No CDVC track record* is a dummy variable equal to 1 if there is no CDVC investment in that region in the past 5 years. *Log GSP per Capita* is the natural logarithm of the state's gross product per capita plus one in the previous year. *Percent of population with college degree or higher* is the share of the state population that has graduated from college. *Log patents* is the number of patents plus one issued in the state in the previous year. *State long-term capital gains tax rate* and *state income tax rate* are average state marginal tax rates in the previous year. State variables are averaged when multiple states comprise a CSA. Standard errors are clustered at the CSA-level. Robust t-statistics are in parentheses below coefficient estimates. ***, **, * indicate statistical significance at the 1%, 5% and 10% level, respectively.

Table 8: Regional Impact of CDVCs on other VC firms' investments

	Number of non-CDVC investments				
	(1)	(2)	(3)	(4)	(5)
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
Log number of CDVC investments, past 5 years	1.3962 ***	0.0442	0.9488 ***		
	(6.11)	*(0.43)*	*(3.77)*		
Log number of VC investments, past 5 years		0.6580 ***			
		(34.93)			
Top three VC area			4.2947 ***		
			(6.45)		
Log GDP per capita	0.2615	0.2309 *	0.2654	0.3791	0.4419
	(0.60)	*(1.80)*	*(0.58)*	*(0.81)*	*(1.05)*
Percent of population with college degree or higher	0.0161	-0.0009	0.0123	0.0166	0.0115
	(1.08)	*(0.22)*	*(0.85)*	*(1.08)*	*(0.87)*
Log patents	0.0494 *	0.0086	0.0376	0.0478 *	0.0414 *
	(1.80)	*(1.30)*	*(1.59)*	*(1.75)*	*(1.65)*
State long-tem capital gains tax rate	-0.0220	-0.0009	-0.0253	-0.0278	-0.0228
	(1.01)	*(0.14)*	*(1.18)*	*(1.26)*	*(1.28)*
State income tax rate	-0.0044	0.0016	-0.0001	0.0017	0.0066
	(0.16)	*(0.21)*	*(0.00)*	*(0.06)*	*(0.30)*
CDVC success rate, past 5 years				1.2819 *	1.0035
				(1.71)	*(1.33)*
No CDVC track record				-1.1915 ***	-0.9121 ***
				(3.78)	*(2.96)*
VC success rate, past 5 years					0.5368 ***
					(4.43)
No VC track record					-0.5794 ***
					(8.69)
Year fixed effects:	yes	yes	yes	yes	yes
R-squared	0.1724	0.7831	0.2446	0.1349	0.2490
Observations	4,736	4,736	4,736	4,736	4,736

The dependent variable is the natural logarithm of the number of non CDVC venture capital firms' investments in the CSA plus one receiving an initial investment in the current year. Geographic locations are assigned at the Combined Statistical Area (CSA) level. In cases where a city is not located in a CSA, we assign venture capital offices in the city to the appropriate Metropolitan Statistical Area (MSA). *Log Number of CDVC investments* is the logarithm of the number of CDVC–backed portfolio companies in the CSA plus one receiving an initial investment in past five years. *Log Number of VC investments* is the logarithm of the number of non-CDVC VC–backed portfolio companies in the CSA plus one receiving an initial investment in past five years. *Top Three VC area* is equal to one if the company is in the Boston, New York of San Francisco CSAs. *CDVC Success rate, past five years* measures the percentage of all CDVC investments in the CSA over the past five years that led to an Initial Public Offering or were merged or acquired. *No CDVC track record* is a dummy variable equal to 1 if there is no CDVC investment in that region in the past 5 years. *Log GSP per Capita* is the natural logarithm of the state's gross product per capita plus one in the previous year. *Percent of population with college degree or higher* is the share of the state population that has graduated from college. *Log patents* is the number of patents plus one issued in the state in the previous year. *State long-term capital gains tax rate* and *state income tax rate* are average state marginal tax rates in the previous year. State variables are averaged when multiple states comprise a CSA. Standard errors are clustered at the CSA-level. Robust t-statistics are in parentheses below coefficient estimates. ***, **, * indicate statistical significance at the 1%, 5% and 10% level, respectively.