



## Venture Capital in the Philadelphia Metro Area\*

Jennifer Knudson

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Many consider venture capital to be a barometer of innovation and economic growth. It is an important source of capital for startups that banks deem too risky to finance. Therefore, it would be useful to examine how the venture capital industry has fared during the recent recession. This report focuses on the Philadelphia metro area<sup>1</sup> and how it compares with the nation. In particular, it highlights the fact that the area increased its share of the nation's biotechnology deals during the recession.

### Data

Every quarter the National Venture Capital Association releases the *MoneyTree Report* in conjunction with PricewaterhouseCoopers using data collected by Thomson Reuters. The report details venture capital investment across 16 sectors and 18 regions from 1995 to the present. Funds from venture capital firms, small business investment companies, and venture departments of corporations, institutions, and investment banks are documented. If angel investors, corporations, or governments also contribute during the same round of financing as one or more of the aforementioned investors, their investment is also counted. However, the report does not include committed money — only actual cash-for-equity transactions. Furthermore, debt, acquisitions, initial public offerings, and non-cash investments, such as services-in-kind, are not counted.

### Historical Overview

During the mid-1990s, the nation experienced a steady rise in venture capital investment. By the end of the decade, the technology boom drove investment sharply higher, jumping from \$26 billion<sup>2</sup> in 1998 to \$66 billion in 1999. U.S. investment peaked in 2000 at \$124 billion and 8,083 deals. Investment dropped off considerably during and after the 2001 recession. It hovered around \$25 billion and 3,000 in deals annually until the most recent peak in 2007, when it totaled \$32 billion over 4,091 deals.

Investment tends to be clustered in areas with high concentrations of venture capital firms, so the fact that the Philadelphia metro area is not a large center for such firms has limited its investment to only about 2

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\* The views expressed here are those of the author and do not necessarily reflect those of the Federal Reserve Bank of Philadelphia or of the Federal Reserve System. Jennifer Knudson is a research analyst and can be reached at Jennifer.Knudson@phil.frb.org.

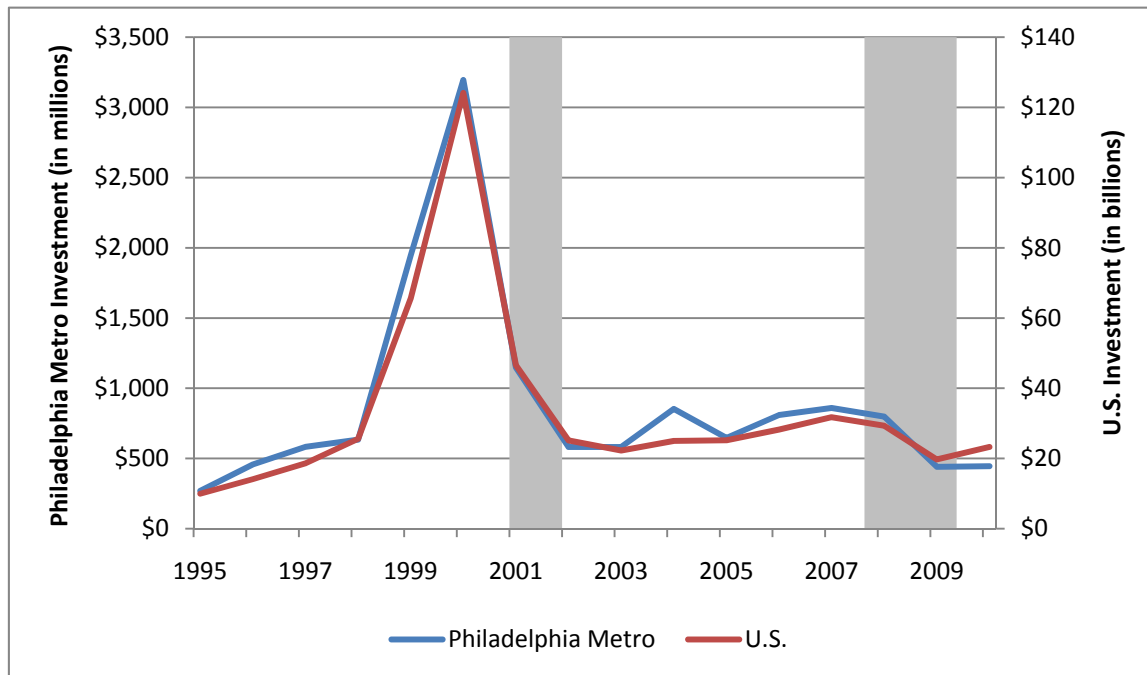
<sup>1</sup> The *MoneyTree Report* defines the Philadelphia metro area as eastern Pennsylvania, southern New Jersey, and Delaware.

<sup>2</sup> All data are expressed in terms of 2010 U.S. dollars. These calculations were performed using implicit price deflators for gross domestic product.

to 3.5 percent of the nation's. However, proximity to New York has helped attract funds to the Philadelphia metro area throughout the years. For example, Silicon Valley, New England, and the New York metro area host over 50 percent of venture capital firms and comprise nearly 60 percent of total national investment. However, firms in those areas can often realize higher rates of return outside their boundaries due to a scarcity of funds elsewhere. This is true when travel and monitoring costs are low, which would be the case for firms in New York investing in Philadelphia.<sup>3</sup>

Although at a much smaller scale, the Philadelphia metro area has mimicked the nation's investment patterns over the past 15 years. Investment skyrocketed from \$634 million in 1998 to \$1.9 billion the following year. By 2000, it had risen even further to \$3.2 billion over 230 deals. The ensuing recession caused a decline in venture funding but with significantly more annual variability than at the national level. Investment amounts ranged from \$580 million to \$650 million from 2002 to 2005, with the exception of 2004, which had \$853 million. In 2007, the area saw a post-recession high of \$860 million in investment over 140 deals.

**Figure 1. Total Investment**



**Effect of the Recent Recession**

Like the 2001 recession, the most recent recession, which lasted from December 2007 to June 2009, weakened the venture capital industry. U.S. investment fell slightly from its 2007 high of \$32 billion to \$29 billion in 2008. The following year brought a steeper decline as the investment level fell to \$20 billion, and deals decreased 25.4 percent to 3,047. The year 2010 brought a slight recovery with investment edging up to \$23 billion over 3,460 deals. However, these amounts are 26.7 percent and 15.4 percent, respectively, off

<sup>3</sup> See Chen et al, 2010.

their pre-recession highs. In any case, investment for the first two quarters of 2011 totaled \$13 billion, indicating that the recovery is on pace to continue nationally.

**Table 1. Rankings by Investment**

Region <sup>4</sup>	Ranking			Investment (in billions)		
	2007	2010	Change	2007	2010	Change
Silicon Valley	1	1	0	11.52	9.14	-20.7%
New England	2	2	0	4.02	2.63	-34.7%
San Diego	3	9	-6	1.92	0.86	-55.4%
LA/Orange County	4	4	0	1.90	1.59	-15.9%
New York Metro	5	3	2	1.89	2.00	5.9%
Southeast	6	6	0	1.81	1.18	-34.7%
Texas	7	10	-3	1.68	0.84	-49.8%
Northwest	8	7	1	1.49	0.94	-36.7%
DC/Metroplex	9	8	1	1.29	0.92	-28.9%
Midwest	10	5	5	1.17	1.42	21.1%
Philadelphia Metro	11	12	-1	0.86	0.45	-48.2%
Colorado	12	11	1	0.62	0.50	-20.3%

**Table 2. Rankings by Deals**

Region	Ranking			Deals		
	2007	2010	Change	2007	2010	Change
Silicon Valley	1	1	0	1,278	1,037	-18.9%
New England	2	2	0	517	405	-21.7%
New York Metro	3	3	0	275	373	35.6%
Midwest	4	4	0	263	257	-2.3%
Southeast	5	6	-1	241	203	-15.8%
LA/Orange County	6	5	1	227	215	-5.3%
DC/Metroplex	7	9	-2	216	144	-33.3%
Northwest	8	7	1	211	156	-26.1%
Texas	9	8	1	179	151	-15.6%
San Diego	10	11	-1	164	121	-26.2%
Philadelphia Metro	11	10	1	140	124	-11.4%
Colorado	12	12	0	105	87	-17.1%

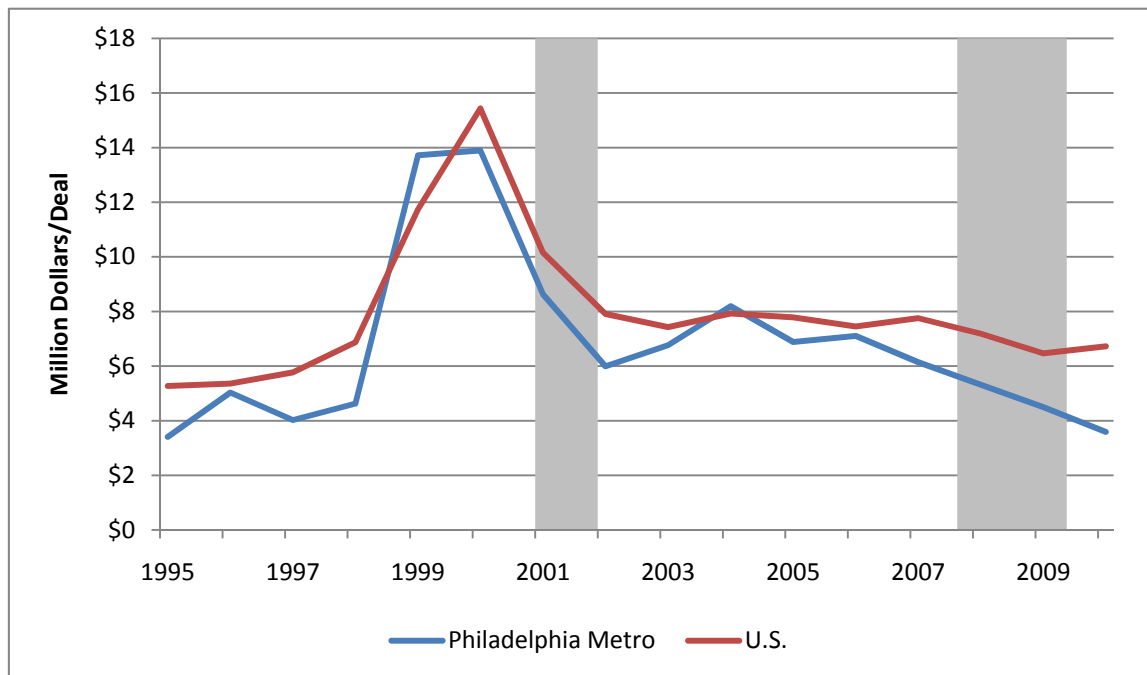
<sup>4</sup> See Table 3 for geographic definitions.

Tables 1 and 2 show that the majority of the top 12 regions in terms of both investment and deals experienced decreases in venture capital activity due to the recession. The New York metro area, which saw a 5.9 percent rise in investment and a 35.6 percent increase in deals from 2007 to 2010, is an exception. The Midwest also bucked the trend, with investment rising 21.1 percent during this time period.

The Philadelphia metro area, however, mostly stayed in line with the national pattern. Investment dropped to \$798 million in 2008 and then plummeted 44.7 percent to \$441 million over 98 deals in 2009. It increased only \$4 million, to \$445 million over 124 deals in 2010. This represents a drop of 48.2 percent and 11.4 percent in terms of investment and deals, respectively, since 2007. The Philadelphia metro area fell one spot in the investment rankings to 12<sup>th</sup>. This indicates that the area received a smaller portion of national investment than before the recession. In fact, its share of national investment fell from 2.7 percent in 2007 to 1.9 percent in 2010. On the other hand, the area rose one spot in the deals rankings to 10<sup>th</sup>, indicating it received a larger percentage of national deals post-recession. Specifically, its share of national deals rose from 3.4 percent in 2007 to 3.6 percent in 2010.

A decreased share of national investment and an increased share of national deals imply that average deal size in 2010 was lower than the pre-recession average. Figure 2 shows that the most recent peak in average deal size occurred in 2006 in the Philadelphia metro area at \$7.1 million. By 2007, it had dropped somewhat to \$6.1 million, and by 2010, it was only 3.6 million. Data from the first half of 2011 show an increase in average deal size to \$4.3 million. This has primarily been driven by a slowdown in deals in the area, which total only 52 so far this year. Investment for the first two quarters is at \$214 million.

**Figure 2. Average Deal Size**



## Biotechnology

Despite the overall decrease in venture capital activity due to the recent recession, the Philadelphia metro area managed to find a bright spot in terms of biotechnology<sup>5</sup> deals. Not only did deals rise to 35 in 2010 from 32 in 2007, but the Philadelphia metro area's share of national biotechnology deals also increased. Furthermore, the area maintained its share of national biotechnology investment. However, actual investment did not fare as well, dropping 33.1 percent from its 2007 level to \$229 million in 2010. This means the average biotechnology deal size was \$6.5 million in 2010, which is much higher than the area's overall average of \$3.6 million per deal but much lower than the pre-recession biotechnology average of \$10.7 million.

However, 2010 did constitute somewhat of a departure from the recession, as biotechnology investment notched upward nearly 4 percent from its 2009 level of \$220 million. Similarly, deals increased almost 30 percent from the 27 that occurred in 2009. To compare, the area's total investment increased only 1 percent from 2009 to 2010, while total deals rose only 26.5 percent. This may suggest that the area's biotechnology industry is rebounding from the recession faster than the area as a whole.

**Figure 3. Philadelphia Metro Investment in 2010 (in millions)**

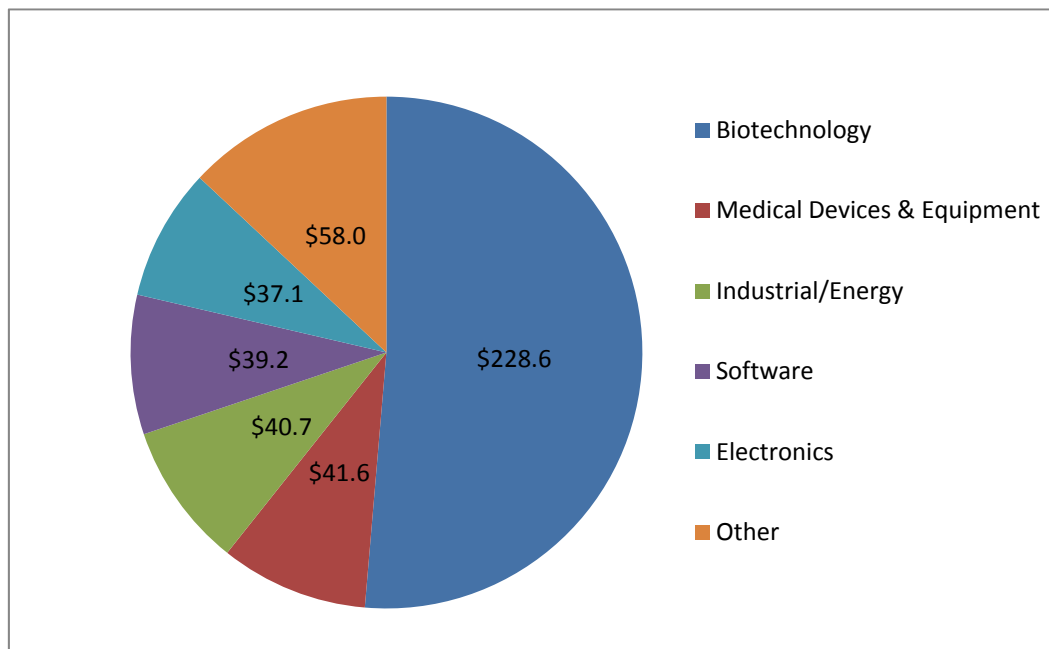


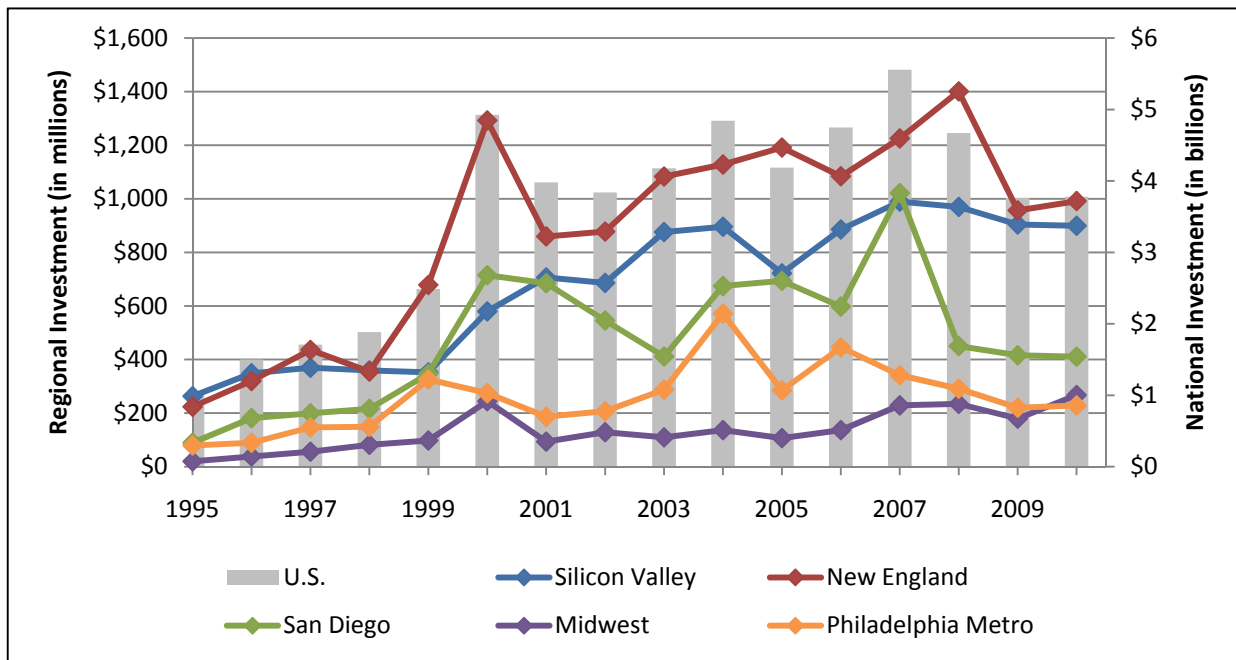
Figure 3 shows that even though biotechnology investment has not reached its pre-recession levels, it is still a very important part of the Philadelphia metro area's venture capital activity. The sector received the most funding of any in the area, comprising 51.3 percent of total investment and 28.2 percent of total deals. In fact, it has been the top sector since 2001.

<sup>5</sup> The *Moneytree Report* defines biotechnology as “developers of technology promoting drug development, disease treatment, and a deeper understanding of living organisms. Includes human, animal, and industrial biotechnology products and services. Also included are biosensors, biotechnology equipment, and pharmaceuticals.”

Nationally, biotechnology has been the second largest sector behind software since 2002. In 2010, it comprised 16.3 percent of total investment and 13.8 percent of total deals. Investment peaked in 2007 at \$5.6 billion over 504 deals. By 2009, it was down to \$3.8 billion over 437 deals. Investment stayed relatively flat in 2010, but deals rose to 477. These 2010 levels represent a 32 percent decrease in investment and a 5.4 percent decrease in deals since 2007.

Figure 4 shows that the top five areas in terms of biotechnology investment saw overall decreases in funds by the end of the recession. However, investment in some of those areas picked up in 2010. From 2007 to 2010, investment fell 19.1 percent in Silicon Valley, 9.1 percent in New England, 59.7 percent in San Diego, and 33.1 percent in the Philadelphia metro area. The New York metro area, which ranked fourth in 2007, actually fell to sixth by 2010, with a 46.8 drop in investment. This allowed the Midwest, which saw funds rise 16.9 percent, to move into the top five. By 2010, it had edged out the Philadelphia metro area for the fourth spot, with investment totaling \$268 million.

**Figure 4. Biotechnology Investment**



The rankings for biotechnology deals look very similar to those for investment over the 2007 to 2010 time period. New England, which ranked first in 2010, had a 1.1 percent decline to 93 deals. Deals fell 7.3 percent in Silicon Valley, to 89, and 11.3 percent in San Diego, to 55. On the other hand, the Midwest and Philadelphia metro area saw gains of 22.5 percent (49 deals) and 9.4 percent (35 deals), respectively. The New York metro area actually surpassed the Philadelphia metro area by 2010 with 39 deals (30 percent increase).

Even though the Philadelphia metro area fell out of the top five in terms of deals, it managed to increase its share of national biotechnology deals from 6.3 percent in 2007 to 7.3 percent in 2010. Similarly,

it kept the same portion of national biotechnology investment as it did pre-recession (6.1 percent). These numbers are impressive, considering the area’s total venture activity accounted for only 3.6 percent of total national deals and 1.9 percent of total national investment.

**Outlook**

As expected, the recent recession caused a decrease in venture capital activity both in the Philadelphia metro area and across the nation. Both benefitted from increased investment post-recession, but even so, activity is not back to pre-recession levels. However, early data from 2011 indicate that the recovery is on track to continue.

Additionally, the Philadelphia metro area can garner hope for recovery from its biotechnology sector. Even though total deals in the area dropped due to the recession, biotechnology deals rose. Looking at the post-recession period, biotechnology deals increased more than total deals. Similarly, biotechnology investment rose more than overall investment. Furthermore, the area was able to maintain its share of national biotechnology investment and increase its share of national biotechnology deals from 2007 to 2010. The way this sector weathered the recession indicates its relative strength going forward.

**Table 3. Geographic Definitions**

DC/Metroplex	Maryland, Virginia, West Virginia, and Washington, D.C.;
LA/Orange County	Southern California (excluding San Diego), the Central Coast, and San Joaquin Valley
Midwest	Illinois, Indiana, Kentucky, Ohio, Michigan, Missouri, and western Pennsylvania
New England	Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, and parts of Connecticut (excluding Fairfield County)
New York Metro	Metropolitan New York area, northern New Jersey, and Fairfield County, CT
Northwest	Idaho, Montana, Oregon, Washington, Wyoming
Philadelphia Metro	Delaware, eastern Pennsylvania, and southern New Jersey
San Diego	San Diego area
Silicon Valley	Northern California, bay area, and coastline
Southeast	Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee

**Sources**

Chen, Henry, Paul Gompers, Anna Kovner, and Josh Lerner. “Buy Local? The Geography of Venture Capital.” *Journal of Urban Economics* 67 (2010): 90-102.