Management 425 Course Pack
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Chapter 6
Venture Capital Market Dynamics

The venture capital market experienced one of the most brutal investment climates during 2008 and 2009 since Andrew Mellon struggled with his investments during the Great Depression. CalPERS (the California Public Employees' Retirement System), the largest pension in the United States, is a big investor in venture capital. CalPERS explained the decline in venture capital in the June 2009 *Alternative Investment Management Program Quarterly Review:*

> In the second quarter of 2009, venture capital activity decreased in dollar amount and in the number of companies receiving funding compared to the second quarter of 2008. According to Venture Economics, 2,615 companies received $21.8 billion in venture funding in 2009 compared with 4,352 companies that received $52.4 billion in the second quarter of 2008.[1]

CalPERS is not perfect (no investor is), but they have a good pulse on the venture capital, market and reports such as this are worthwhile. Only 10 venture-backed companies went public in 2009; there were just six in 2008. The real estate market collapse and credit crises affected all areas of finance both public and private. Venture capital did not escape. Investors flocked to gold and cash. Illiquid investments were shunned, causing a number of well-known venture capitalists (particularly those of retirement age) to hang up their hats. Employment at venture capital firms typically has low turnover, but in June 2009, the *Boston Business Journal* reported that New England had already experienced nearly double the turnover rate for the year from 2007 and 2008, including nearly a dozen senior-level venture capitalists.[2] However, many employees were fired or quit, and some even switched firms. A number went on to pursue other opportunities unrelated to venture capital.

The initial public offering (IPO) market evaporated and was the worst anyone had seen for 30 years. Institutional investors walked away. Further, certain endowments, like Harvard, ran into cash flow problems and put

billions of private equity up for sale. Venture capitalists fortuitous enough to stay and fight focused on helping their strong companies weather the storm while letting weaker players fail. Venture capitalists increased allocations to later-stage companies. Some experienced difficulty raising new funds. The *San Francisco Business Times* reported that "Most venture capitalists agree the industry is contracting. Some VCs won't be able to raise new funds. Those that do say they don't expect as lucrative returns as they achieved in years past. And the outlook for IPOs and acquisitions, while improving, is still relatively bleak."[3]

Whether it be Boston or Minneapolis, early stage or late stage, many venture capital deals are either tech or health care. Table 6.1 provides a sampling of Boston top-funded startups in 2008.

Table 6.2 provides a list of Minnesota venture capital deals in 2009.

These two sectors (on any given year) are favorites with venture capital firms. According to *Barron's,* "Venture-capital funding plummeted after the dot-com bubble burst, but current levels represent a more sustainable base of investment. Technology and health-care companies continue to raise the largest sums."[4] Figure 6.1 provides a chart that shows information technology as the largest area for venture capital in 2005.

In a 2009 analysis of the trends generated by each sector, *Investor's Business Daily* noted that "For the first time since the National Venture Capital Association and others started tracking these data in 1980, biotech surpassed software as the largest single category of venture investment."[5] Health care as a whole is also a large part of venture capital and almost equal to information technology. Figure 6.2 gives greater detail of investment allocation in venture-capital industries.

Table 6.1 Boston Top-Funded Startups in 2008

Company	Business	Amount Raised ($)	Venture Firms and Individual Investors
1366 Technologies	Alternative energy production	12,500,000	Individual investors, North Bridge Partners, Polaris Venture Partners
Agios Pharmaceuticals	Biotechnology	20,000,000	ARCH Venture Partners, Flagship Ventures, Third Rock Ventures
Alnara Pharmaceuticals	Biotechnology	20,000,000	Bessemer Venture Partners, Frazier Healthcare Ventures, Third Rock Ventures
Artemis Health Inc.	Diagnostic equipment	20,000,000	Alloy Ventures, Mohr Davidow Ventures, Sutter Hill Ventures
Auraria Networks	Business software	10,000,000	Matrix Partners, Pilot House Ventures Group
Aveksa	Network software	12,000,000	Charles River Ventures, First Mark Capital, FTVentures
BitWave Semiconductor	Specific integrated circuits	10,000,000	Apex Venture Partners, eCentury Capital Partners, TVM Capital
Blueshift Technologies Inc.	Integrated circuit production	12,000,000	Atlas Venture, Intel Capital, North Bridge Venture Partners
Boston-Power Inc.	High-tech	45,000,000	Gabriel Venture Partners, Venrock Associates
Codon Devices	Medical devices	37,000,000	Alloy Ventures Inc., Flagship Ventures, Highland Capital Partners Inc., Khosla Ventures, Kleiner Perkins Caufield & Byers

Source: Boston Top-Funded Startups in 2008, *Boston Business Journal* (November 28–December 4, 2008). Used with permission.

Table 6.2 Minnesota Venture Capital Deals in 2009

Name	Stage	Amount Raised	Investors
Industry: Medical Devices			
Anulex Technologies Inc.	Later	$10.2 million	Affinity Capital Management, Delphi Ventures, MB Venture Partners, New Enterprise Associates, SightLine Partners, Split Rock Partners
CoAxia Inc.	Later	$21.5 million	Affinity Capital Management, Baird Venture Partners, Canaan Partners, Johnson & Johnson Development Corp., Prism VentureWorks, Sofinnova Partners
Inspire Medical Systems Inc.	Early	$17 million	Kleiner Perkins Caufield & Byers, Medtronic Inc., Synergy Life Science Partners, U.S. Venture Partners, and an undisclosed firm
Orasi Medical Inc.	Early	$3.5 million	CentreStone Ventures Inc., PrairieGold Venture Partners
Torax Medical Inc.	Later	$22.1 million	Accuitive Medical Ventures; Kaiser Permanente Ventures; Sanderling Ventures; Thomas, McNerney & Partners
Wound Care Technologies	Early	$460,000	Rain Source Capital

Source: Andrew Conry-Murray, "Startup City," *Information Week* (April 13, 2009), http://www.informationweek.com/blog/main/archives/2009/04/introducing_inf_2.html, accessed April 20, 2009. Used with permission.

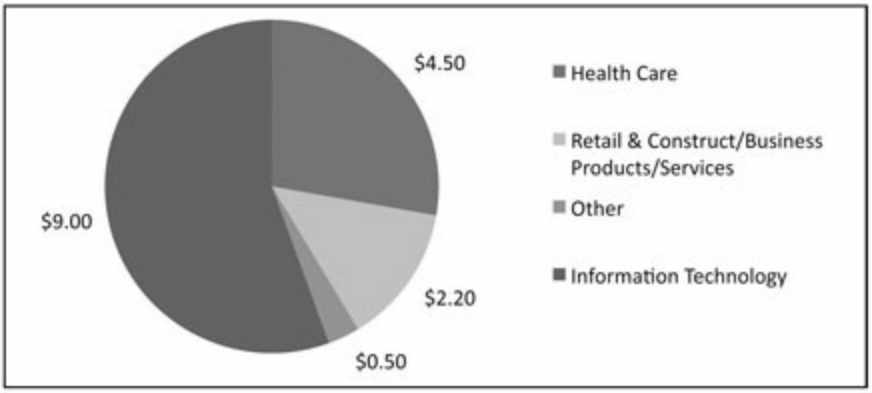

Figure 6.1 Venture Capital Equity Investments ($bil) through Sep. 30, 2005

Source: Russ Garland and Brian Gormley, "Grooming the Next IPOs," *Barron's* (January 9, 2006).

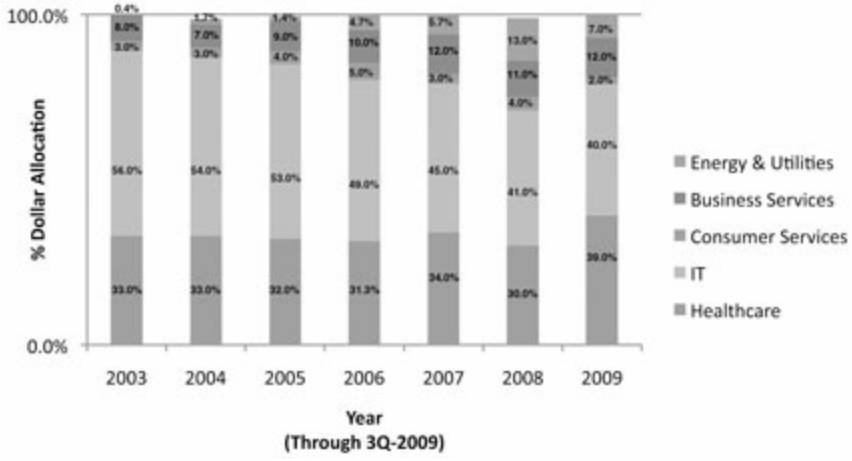

Figure 6.2 Investment Allocation by Industry Group

Source: Ernst & Young, "3Q 2009 Venture Insights," 2009, 8. Used with permission.

Global expansion and mega funds fell by the wayside in the Great Recession. Mergers and acquisitions of venture-capital companies experienced problems because of the credit crisis. As Bo Peabody of Village Ventures explains, "It is much harder to get good exits when credit is tighter

which makes it harder for big companies to be flexible."[6] The market declined in 2008 and 2009 as the result of a credit crisis. Because public valuations dropped (the Dow went from 14,164 to 6,469), valuations of private companies also plummeted. Entrepreneurs believe their companies are worth more than competitors, but public companies with cash (possible buyers) struggled with buying a business when the valuation was hard to justify. Companies have been hoarding cash to record levels. Cash is king, as they say.

The Sarbanes-Oxley Act

As small, fast-growing companies look to grow and head toward an IPO, Sarbanes-Oxley, which held CEOs and CFOs accountable for the accuracy of their company's financial statements, has turned into a hindrance, not a help. Sarbanes-Oxley is about as useful as surfing with a two by four and as helpful as throwing a heavy anchor to a surfer washed out to sea by a sudden, vicious storm. The intention might have been good—to help the surfer—but it was not done the right way, and the expenses have thwarted many fine companies from going public. Moderation would be more helpful with venture capital. On one hand, you do not want to red-tape and restrict-to-death growth companies. On the other hand, you do not want a free-for-all. Companies that want to go public in the United States are now looking abroad to markets in Europe or Asia where restrictions are not as stringent nor costs as high. Sarbanes-Oxley costs small public companies a lot of money to comply. Not a lot of companies have extra funds to throw around.

Taxes

As noted with Andrew Mellon, when taxes on capital gains are increased, it adversely affects venture capital. The contrapositive is true: lower capital gains taxes is beneficial for venture capital. Lower capital gains tax rates propel businesses to grow and not wither on the vine. Entrepreneurs are more inclined to start companies in favorable tax environments. Paul Gompers and Josh Lerner discussed this relationship in their book, *The Venture Capital Cycle:*

> The relation between capital gains taxes and venture capital commitments... is clearly negative. In the 1970s high capital gains tax

> rates were associated with low levels of venture capital fund-raising. Increases in the capital gains tax rates in 1988 were followed by reductions in venture capital commitments, while the reduction of capital gains for long-held investments in 1993 was followed by a rise in venture fund-raising. This negative relation between venture capital funds levels and capital gains tax rates is clearly only suggestive, because the influence of multiple factors needs to be examined.[7]

Besides entrepreneurs themselves, investors tend to invest more in venture capital when taxes are lower. Any investor contemplating making an investment in a novel medical device company that saves lives might be doing it not just because they are altruistic but also because they are looking to generate a profit. Venture capital either does really well or very poorly, and seldom is there a middle-of-the-road result. If an individual investor risks capital for a company, most people think they should be rewarded. However, the threat of removing the 15% capital gains tax greatly increases an investor's risk. Why risk your money if there is reduced potential for a healthy return? Steve Goodman, senior partner at Morgan Lewis and one of the most experienced venture capital attorneys in the country, views venture capital in 2009 as "the worst it has ever been" and believes the venture capital industry will take "many years to recover."[8]

Michael J. Heller, chair of business law development at Cozen O'Connor, echoes the sentiment: "The only reason a company will go public in today's environment is a need for either liquidity or access to capital. It will be a long time before tech IPOs come back in vogue. If a tech company is before its time it will need at least 5 years of capital."[9] Similarly, a report by Foley & Lardner states that "virtually no emerging company executives surveyed (3%) plan to test the IPO market. Further, respondents expect the IPO market to continue to lag, with 81% predicting a stagnant IPO market over the next to years."[10]

The Market Moving Forward

At this point, one might turn to a different chapter or even hide in a bomb shelter. One might come to the false conclusion that venture capital is not worth it and write off the asset class altogether. Although this is easy to do, it is my belief that the years following the recession from 2007 to 2009 have yielded

an environment in which the venture capital industry is extremely attractive, and the time to buy will be optimal as long as that environment holds. If an investor finds the appropriate vehicle to invest in venture capital, understands the risk, and performs the appropriate due diligence, the possibilities are limitless.

The market for venture capital is constantly moving and evolving. The structure of venture capital firms has even changed over time to include areas outside of venture capital. Years ago, venture capital, hedge funds, and leveraged buyout (LBO) firms stuck to their own knitting and did not enter into each others' backyards. More recently, venture capital firms have morphed into other areas like hedge funds and LBO firms. For instance, venture capital funds are moving into the LBO area. Silver Lake Partners does both venture capital and LBO. Besides Jim Davidson and Dave Roux, one of the other partners, Roger McNamee, is a top venture capital and hedge fund manager. Glenn Hutchins previously worked at the LBO firm Blackstone Group. Likewise, many of the LBO funds like Bain Capital have set up venture funds. The Carlyle Group, a Washington, D.C.-based LBO firm, created a venture area led by Ed Mathias, who also helped set up New Enterprise Associates (NEA). Jay C. Hoag of Technology Crossover Ventures does venture capital and LBO. Last, hedge funds have moved into venture capital. Thus, venture capital has cross-pollinated with hedge funds and LBO firms.

Well-Known Venture Capitalists Who Were Previously Entrepreneurs

1. **Ann Winblad.** Originally a programmer, Ann Winblad cofounded Open Systems in 1976 with a $500 investment. Open Systems, Inc., was an accounting software company. She operated the firm profitably for 6 years, later selling it for more than $15 million. Her venture fund, Hummer Winblad Venture Partners, is software only (a specialty fund). Hummer Winblad Venture Partners was founded in 1989. It was the first venture capital fund to invest primarily in software companies. She was named the 2007 Financial Woman of the Year by the Financial Women's Association.

2. **Mitchell Kapor.** Mitchell Kapor was a pioneer in the personal

computing space and has been involved with information technology for decades as an entrepreneur, software designer, and angel investor. Before Accel Partners, he created Lotus 1-2-3 and founded Lotus Software Company in 1982. He was president and chief executive officer from 1982 to 1986. In 1983 the company went public. Kapor was a founding investor in UUNET, Real Networks, and Linden Research. He also created the virtual world Second Life.

3. **Mike Farmwald.** Mike Farmwald is an entrepreneur at heart. He started back in 1986 and founded numerous companies: Rambus, Inc., Chromatic Research, Epigram, FTL, and Matrix Semiconductor. Farmwald has a superb track record. In 1990 Farmwald cofounded the semiconductor company Rambus, then went on to start three more chip companies, including Epigram, which he sold to Broadcom for $316 million. He is now a general partner at Skymoon Ventures, based in Santa Clara, California. This venture capital firm focuses on semiconductors and telecommunications infrastructure. It also helps entrepreneurs with business plans and with building their companies.

4. **Josh Kopelman.** As an undergraduate at the Wharton School at the University of Pennsylvania, Kopleman and Marvin Weinberger founded Infonautics, which introduced the online research service for libraries. Kopelman left Infonautics in 1999 to launch Half.com Inc. the following year. At the time, Half.com was a Web site that enabled buyers and sellers to exchange used items for less than half the original price. To advertise the start-up, Kopelman convinced the town of Halfway, Oregon, to change its name to Half.com. In the same year it was launched, Kopelman sold his e-commerce company to eBay Inc. for a deal valued at more than $312 million.[11]
5. **David King.** Before joining Quaker BioVentures, David King had nearly three decades work experience with life sciences. He first started as a lawyer at Morgan Lewis. Then he became CEO of Principia Pharmaceutical Corporation, which was acquired by Herman Genome Sciences, Inc., for $135 million in 2000. Next he became president of Delsys Pharmaceuticals Corporation in 2001, which was acquired by Ekon Corporation. He then founded BioRexis Pharmaceutical Corporation and served as the CEO. BioRexis raised

$38 million in venture capital to finance its operations in 2002. BioRexis was Quaker BioVentures's first investment. BioRexis's main product was protein and peptide therapeutics. BioRexis was sold to Pfizer, Inc., in 2007. For his next phase, David joined Quaker BioVentures as a venture partner, where he invests and helps portfolio companies involved in life sciences. Quaker BioVentures invests in companies at all stages of development, from early stage to public corporations, and has $700 million under management.

Serial Entrepreneurs

There are a number of entrepreneurs who have taken multiple companies public or sold them for substantial amounts of money. I call these entrepreneurs "serial entrepreneurs" because they are extremely successful in building fast-growing companies that are immensely attractive to the marketplace. The pattern is always the same. They build the company to a point where it's large enough, they turn it over to someone experienced with managing such a large company, and they start a new one. The following are serial entrepreneurs:

1. **Jim Clark.** Jim Clark, the legendary Silicon Valley entrepreneur and the founder of Silicon Graphics, Netscape, and Healtheon—as well as a man deeply rooted in the culture of venture capital firms— has cast doubt on the necessity of a formal structure for corporate venturing. "If you have a team that has done good stuff before, they can take even a mediocre idea and make a good company," he once said. Yet his confidence in the ability of talented and experienced individuals to be the primary driving force of a venture overlooks a critical fact about corporations: Most do not have people with extensive experience launching new businesses. Many have never worked outside the corporate bubble, much less for a start-up. It is precisely this absence of experience that makes a formal structure for the corporate venturing process so necessary.[12]

   When asked about the IPO market, Clark responded:

   The IPO market is fueling the innovations that are transforming the U.S. economy into the world's productivity powerhouse. The driving force behind the technological revolution changing the way we live and

work is the maverick, the risk-taker—in other words, the entrepreneur. And backing the entrepreneur is the most sophisticated capital market in the world.... Without IPOs, you would not have any startups.... IPOs supply the fuel that makes these dreams go. Without it, you die.[13]

2. **Alfred Mann.** During the Depression, Alfred Mann sold lemonade and magazines door to door. Since the 1950s, he helped grow 10 companies. In the 1960s, he sold aerospace companies Spectrolab and Heliotek. A *Forbes* profile noted, "He was just 30 when he started Spectrolab in 1956, and he turned it into the leading maker of solar-powered systems for spacecraft. Mann switched to medicine with remarkable results at the age of 42. He invented the first rechargeable pacemaker for the heart, forming Pacesetter Inc. Mann sold his interest in the company in 1985 for $150 million to Siemens AG."[14] Mann is a lifelong inventor and entrepreneur who has helped fund a number of immensely successful upstart biomedi-cine companies that include:

- MiniMed (external and internal insulin pump)
- Advanced Bionics (cochlear implants, neurosimulators)
- Pacesetter Systems (rechargeable pacemakers)
- MannKind Corp. (inhalable insulin medication)
- Second Sight (implantable device to restore vision for retinal degeneration)
- Bioness (medical devices to help recovery from neural injuries)
- PercuPort (pharmaceutical delivery applications)

One of his greatest success stories was MiniMed, which he sold to Medtronic for more than $3 billion. MiniMed held a dominant share of 75% to 80% of the U.S. market for insulin infusion pumps. Currently, Mann's main focus is Mannkind. The company went public in 2004 and demonstrated Mann's ability to know how to ride IPO waves. At the time, he read the market correctly and postponed his IPO for Mannkind in April 2002 until the market was better. "We met with bankers and they told me that, because of my track record with companies and my reputation, that

we could go public now. But I don't believe the market is ready," Mann said.[15] Mann is an experienced wave rider.

3. **Steve Case.** Steve Case became CEO of America Online, Inc., in 1993. I knew Steve Case's brother, Dan Case, who ran H&Q. My old firm Alex. Brown took AOL public. AOL became one of the largest and most profitable Internet companies in history. At AOL's peak, in early 2000, Case acquired TimeWarner in order to create an online media conglomerate. The acquisition was at the peak of the tech bubble and valued the company around $290 billion. In early 2003, Case launched Revolution LLC. Revolution LLC is a private holding company that has interests primarily in health care, but also wellness and resorts. In 2005, Revolution LLC acquired and launched 11 companies. Revolution Health, a subsidiary of Revolution LLC, merged with Waterfront Media in 2008 for $300 million, which gave both companies strong positioning to compete with online medical giant WebMD.[16] On November 24, 2009, Time-Warner released AOL shares on a when-issued basis.

4. **Marc Andreessen.** Andreessen developed Netscape 15 years ago with Ben Horowitz, which he sold to AOL in 1999, becoming AOL's chief technology officer. In the past 15 years, he and Horowitz have started three companies, including software company Opsware, which was sold to Hewlett-Packard for $1.6 billion in 2007. His latest Internet venture, Loudcloud, provides software infrastructure services to accommodate the increasing complexity of networks of servers for Internet businesses. Along with his partner, Andreessen started a venture capital firm called Andreessen Horowitz. Their strategy with this fund is to invest in young, small companies, testing the traditional theory that "smaller funds making smaller investments in very young companies will yield higher returns."[17] For someone who recognizes venture capital waves, Marc Andreessen knew that 2009 was the time to start a new fund. In a recent interview, Andreessen noted, "If you look at the history of venture capital, which tends to be seven years of feast followed by seven years of famine, most of the really good investments have been made during that famine period."[18] Andreessen is a wave rider. According to a *Fortune* magazine profile:

In some ways Andreessen has already put his money where his mouth is. He invested in LinkedIn partly because he believes employees won't be hired through jobs listings and resumes but through myriad connections. He built Ning because he feels people will move narrow aspects of their social lives onto the Net, convening online in groups specifically for, say, beagle owners. Raising venture money in bad equity markets is hard to do, but those who can do it are funds worthy of exploring. The fact that Andreessen was able to raise money in a difficult time is a testament to his entrepreneurial savvy. Many venture funds with excellent track records struggled to raise money during this time. Few (if any) new funds were able to raise funds. When the going gets tough, the tough get going.

5. **David Levison.** Levison was president of Oncology Therapeutics Network, which was sold to Bristol-Meyers Squibb in 1996. Previously, he was CFO of Oncology Therapeutics Network's parent company Axion. He later founded iScribe, which focused on health-care technology. Levison then sold iScribe to AdvancePCS (now Caremark) in 2001. Levison knows about waves. As he says, there is a "need to see beyond historical trends."[19] He has also worked at various venture firms, including Texas Pacific Group, Mohr Davidow Ventures, Intel Capital, and Pappas Ventures, and was interim CEO at XDx. In early 2005, Levison founded CardioDx, a diagnostic test developer, with three rounds of about $50 million financing from Kleiner Perkins Caufield & Byers, TPG Biotech, Mohr Davidow Ventures, Intel Capital, and Pappas Ventures.[20]

Venture Ideas

Venture ideas can come from a variety of sources. Many such ideas come from former companies where an employee comes up with a new or better idea leaves to start a new company. Venture ideas can also be started through science, for example, when a doctor or scientist discovers an idea for a new biotech company. Table 6.3 lists the top-10 places where venture ideas are devised:

Table 6.3 Top 10 Places from Which Venture Ideas Emanate

Previous companies	Self-employment
Friends	Practical use/necessity
Family	Travel
Hobbies	Health care
College or graduate school connections	Purely accidental

Source: Author.

Supply and Demand

Venture capital revolves around supply and demand. Venture capitalists are the ones supplying the capital; entrepreneurs and companies are the ones demanding the capital. In other words, the demand is the desire of the company or entrepreneur for growth capital. When the equity market corrects or crashes, the supply of venture capital in the system significantly decreases, which makes it more difficult for early-stage companies and entrepreneurs to obtain funds. The investing process becomes advantageous to the venture capitalist and/or investor. But when the market is at an all-time high, it is much easier to get capital (supply), and the entrepreneur benefits, not the venture capitalist and/or investor.

When the equity and IPO markets are good and there are new venture capital entrants to the market and a lot of cash sloshing around, it is not the best time for investors. The reason is that the case revolves around supply and demand. Venture capital firms will need to compete more and ultimately pay higher prices for companies. It is good news for entrepreneurs because they can extract higher prices from venture capital firms, but it ultimately will lead to lower returns for investors. One can easily find out how much money is moving into venture-backed companies. Various firms such as VentureOne track theses statistics. The following excerpt is from the *Wall Street Journal:*

In 2006, 56 venture-backed companies went public in the U.S., raising about $3.7 billion, according to data from research firm VentureOne and New York accounting firm Ernst & Young LLP. While that exceeded the 42 venture-backed IPOs in the U.S. that raised $2.3 billion in 2005, it is down from the 67 venture-backed IPOs of 2004 that raised nearly $5 billion.[21]

Fundraising

Although 2009 was a great time to invest in venture capital, investors were still leery. Venture funds have difficulty raising new funds when markets correct because investors are traumatized by the market. As 2009 drew to a close, the *Wall Street Journal* looked back at the venture-capital data for the year:

> This year, 435 venture-capital funds have hit the road to raise money, compared with 452, for all of 2008 and 445 in 2007, according to research firm Preqin. Out of that field, just 134 new venture-capital funds had completed their fund raising and closed to investors as of early November, down from the full-year totals of 309 funds in 2008 and 363 in 2007. The new combers raised just $20.4 billion in total capital down 65% from $58.2 billion in all of 2008, according to Preqin.[22]

Fund-raising for venture capital firms has steadily declined from 2007 to 2009. Similarly, there are a large number of funds on the road trying to raise capital.

Market Trends

Venture capital is trendy. What was hot in 1994-1996 (microbreweries) was quite different from 2007-2009 (cloud computing, cleantech, solar, and Smart Dust). As described in Cendrowski, Martin, Petro, and Wadecki's 2008 book *Private Equity:*

> VC has always been a lumpy business for returns, with huge ups and large downs. Venture is currently looking for its next wave of cutting-edge technology to help buoy its returns: In the early 1980s, it was venture's assistance in the personal computer market that drove such high returns; in the late 1990s, venture's—and the overall market's— obsession with Internet-based technologies caused returns to skyrocket. Right now, venture investors are searching for that next bit of breakthrough technology to bolster their returns and help the industry regain some traction.[23]

Figure 6.3 depicts trends in venture capital from the early 1990s. As discussed, venture capital helps start whole industries (e.g., railroads,

personal computers, microbreweries, Internet, and cleantech). At the time that these nascent industries formed, they seemed unrealistic, futuristic, or impossible to imagine. Looking back (hindsight is always 20/20), it seems obvious. If one sat in a saloon with Carnegie, Mellon, and Rockefeller (at the time) and told people you had a vision to put railroad tracks made

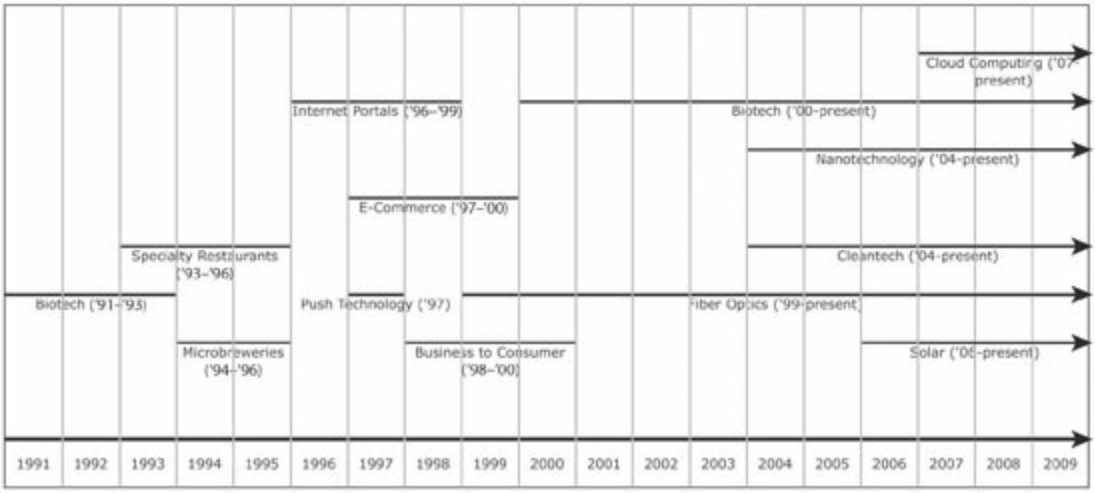

Figure 6.3 Venture Capital Trends

of steel across the country with trains so you could ship goods and people, it would seem novel. Today, we take railroads for granted. The objective for any investor or venture capitalist is to try to identify the next new thing. Although there are others, the sectors profiled below highlight three venture capital trends worth following in the opening decades of the twenty-first century.

Nanotechnology

Nanotechnology started in 2004. It is basically the science of making things smaller. A nanometer is one billionth of a meter. Consumers frequently desire smaller objects. Television sets used to be massive and heavy. Now they feature flat screens and are much lighter. Even fabric can be made so that clothing is spillproof. The area is vast and growing. One area that appears to be growing within nanotechnology is Smart Dust. *Investor's Business Daily* characterizes Smart Dust as being "based on microelectromechanical systems, or MEMs. These tiny computer chips can measure temperatures, vibrations, or surface pressures. Smart sensors relay signals back to a command computer,

which then compiles the data to give feedback to plant managers."[24]

Smart Dust has a variety of uses: tiny, wireless networks of sensors can be used to change pharmaceutical, security, space-exploration, environmental, technology, and oil industries. One specific health-care use might be for a patient with cardiovascular disease to swallow a pill and, as Smart Dust roams through their bloodstream, be able to pinpoint or identify a problem likely to occur. Adds *Investor's Business Daily,* "Or tiny robotic chips drifting through a human artery to locate, and eradicate, a hidden clot."[25] Smart Dust can aid industrial companies as well. Companies like Crossbow offers industrial applications such as semiconductor, mining, and pharmaceuticals. Dust Networks assists oil and gas industry technology. DataDot Technology makes "microdots" for car parts as a security against theft.

Cleantech

Cleantech or "clean" technology goes by different names. Sometimes referred to as "green technology," "green investments," or "alternative energy," the names all apply to efficient energy such as solar, wind power, biofuels industrial technologies, energy efficiency, energy stage, or other renewables. The field also applies to pollution control, recycling, and other "environmentally friendly" developments. According to *Investor's Business Daily,* "In 2008, cleantech VC funding rose 42% from 2007, to $4.6 billion."[26] Despite the market collapse in 2008, a record amount of venture capital was raised for cleantech, with more than $2 billion in funding invested in cleantech start-up companies during the second quarter—a new record that worked well to ease concerns about the overall health of venture capital during the recession.[27] Cleantech continues to attract capital from VCs especially after the federal stimulus bill, with over $12 billion in allocations to "green" cleantech projects.[28]

One of the largest and well-known venture capital firms, Kleiner Perkins Caufield & Byers, is committed to cleantech. Table 6.4 highlights the top-five venture firms committing capital to cleantech. Two of the more visible partners, Vinod Khosla and John Doerr, favor cleantech. Vinod Khosla worked with John Doerr at Kleiner Perkins but went on to form Khosla Ventures. However, both independently invest in cleantech. According to *BusinessWeek,* "Kleiner is the established giant. The firm has raised a total of $5.9 billion since its founding in 1972 and in, addition to Doerr's hits, helped launch

America Online and Genentech. Still, the firm is a relative newcomer to green investing. Khosla has been dabbling in such details since he started his outfit in 2004."[29] Khosla recently raised another $275 million for a seed fund to invest primarily in cleantech and information technology.[30]

Name	Amount Invested
NGP Energy Technology Partners	$496 million
Nth Power	$420 million
Kleiner Perkins Caufield & Byers	$300 million
Khosla Ventures	$300 million
Draper Fisher Jurvetson	$143 million

Source: Author.

Table 6.4 2009 Venture Capital Firms Investing in Cleantech

Billions of dollars have flowed into many new technologies stemming from cleantech such as smart grids. Smart grids are electric meters that provide two-way communication. These grids could help consumers determine ideal usage times to avoid peak costs and cut back during peak usage times. The start-up Silver Spring builds smart grids. Silver Spring raised $200 million in 2009.

Algae is another area of focus coming into play with cleantech. Reports Elizabeth Millard: "Algae can be farmed into biofuels, much like other sources. It's expensive to do so, but proponents say the yield is much higher and algae farming doesn't have the water-quality issues that have cropped up around corn-based ethanol production."[31] Despite a banner year in 2008, investing in cleantech slowed during the first half of 2009; however, it came back with strong interest during the second part of the year with $1.9 billion invested over 112 deals during the third quarter (up from $1.2 billion over 85 deals in the second and $836 million over 59 in the first).[32] Solar power proved to be the leading segment of the cleantech sector. Cleantech appears to have a bright future. Deloitte Touche Tohmatsu and the National Venture Capital Association polled 775 venture capital firms in 2009 and came to the conclusion that clean technology will see the biggest increase in venture capital funding over the next three years.[33] Most likely, cleantech will become a whole new industry and a major sector to invest with indexes, mutual funds, and other investment vehicles.

Cardiovascular Disease

Cardiovascular disease is the number-one killer in the United States for both men and women. According to the Centers for Disease Control and Prevention (CDC), "Every 33 seconds, one American dies of some form of heart disease or of stroke." Part of the reason health-care costs are so high in the United States is due to cardiovascular disease, not to mention the billions lost when workers are ill or suddenly die. According to the CDC:

> Heart disease and stroke are among the most widespread and costly health problems facing our nation today, yet they are also among the most preventable. Cardiovascular diseases, including heart disease and stroke, are the first and third leading causes of death for both men and women in the United States. They account for more than one-third (35.3%) of all U.S. deaths...more than 1 in 3 (80 million) U.S. adults currently live with one or more types of cardiovascular disease.[34]

The estimated direct and indirect cost for cardiovascular disease in the United States for 2008 is $448.5 billion. Ironically, the U.S. government spends very little on cardiovascular disease despite its widespread complications, the severity of the disease, and the exorbitant costs to the healthcare system. The next wave of venture capital appears to be heading toward cardiology and companies devoted to heart attacks. The smart money knows that heart attacks are the number-one killer of both men and women worldwide, and it's getting worse. The *Wall Street Journal* reported in 2009 that "Heart disease is projected to rise by 16% each decade, and deaths from stroke are expected to double from 2000 to 2032."[35]

Despite being in its infancy, more research is being devoted to plaque, which could be deemed as the "next big thing." Plaque is hard to measure and most people are unaware of how much plaque they actually have. Plaque clogs arteries. Plaque can also burst, killing a person instantly. According to Dr. Kevin Williams at Temple University School of Medicine, "Atherosclerosis kills roughly half of individuals living in Western countries and 30% of people worldwide, making it easily the most deadly human disease." A link to Williams's research may be found at http://www.jci.org/articles/view/35206/pdf.

There are many new companies, both private and public, devoted to

cardiovascular disease. (I call these "cardiocompanies"):

Volcano Corp is a company devoted to plaque and which is now publicly traded. The company has stated that it "sees opportunities in diagnosing and detecting vulnerable plaques."[36]

CardioDX, a diagnostic test developer, run by serial entrepreneur David Levison. CardioDx is Levison's fourth Kleiner Perkins Caufield & Byers-backed company. Levison believes that molecular diagnostics and personalized medicine offer an immense opportunity. His company should reduce health-care costs and is being positioned for an IPO. The market is challenging, but Levison was successful enough to raise $50 million. Although the lackluster IPO market might dissuade some CEOs, Levison feels that one "needs to see beyond the historical trend" and that the best returns often are "when there are few exits available."

CVRx, a med-tech start-up based in Brooklyn Park, Minnesota, raised $200 million in financing to develop a device to treat high blood pressure, one of the risk factors for cardiovascular disease.

Kardia Health Systems Inc., started in Rochester, Minnesota, raised $15.1 million in venture capital for developing software for cardiology clinics. The software can be accessed online for doctors to review medical records and images remotely.

Resverlogix Corporation raised $25 million for new treatments for plaque reduction and other vascular disorders. The focus of Resverlogix's program is to develop normal small molecules that enhance ApoA-I, which helps build HDL or good cholesterol.[37]

diaDexus, which offers the PLAC Test, which helps identify hidden risk for heart attack and stroke;

Cardiorobotics Inc., which received $11.6 million in a Series A funding led by Eagle Ventures. The company has built several generations of snake robot platforms, which are highly articulated multi-link catheters allowing minimally invasive procedures.

Boston Heart Lab, which makes a diagnostic test for heart disease that was funded by eight angel investment groups; and

CardiAQ Valve Technologies, which raised $6.5 million with Broadview Ventures. Technology is a Transcatheter Mitral Valve Implantation system designed to be an effective alternative to open-chest surgery.

Imricor Medical Systems raised $3 million with a private placement for developing imaging technology.

InfraReDx, Inc. was granted clearance by the FDA to market IVUS Coronary Imaging System, a medical device for cardiologists to help identify plaques linked to heart attacks after a patient is given stents. According to the company, the system is the "first cardiac catheter to combine intravascular ultrasound and near-infrared spectroscopy."

Global Markets

The venture world is becoming far more global and a number of countries are gaining traction, unlike the United States. Presently, the United States has 60% of the world market but is losing ground as China and India gain momentum.

China

According to the Organization for Economic Development, China's spending on research and development surpassed Japan's in 2006, putting it second in the world, behind the United States.[38] *Investor's Business Daily* reported China's growth potential:

> ChiNext, also known as the Growth Enterprise Market of GEM, is a secondary board of the Shenzhen Stock Exchange in southern Guangdong province. Unlike the big government enterprises mostly found on other mainland exchanges, the newly listed firms on ChiNext provide a window into China's entrepreneurial laboratory.... ChiNext is also expected to give a strong boost to China's venture capital and private equity markets. Listed shares in promising startups now offer such investors a way to cash out of these investments once they've matured.[39]

ChiNext could be a hotbed of activity. ChiNext raised more than $2 billion from the 28 firms that went public and by the second day of trading, had a combined market value of almost $19 billion.[40] Figure 6.4 was compiled by *Red Herring,* a magazine that focuses on new technologies; hosts conferences for venture capitalists, entrepreneurs, and technologists; and breaks down the global market share, of which China has 8%.

India

Like China, India is making progress with growth companies. Figure 6.5 is a chart by Deloitte expressing the anticipated level of investment in India.

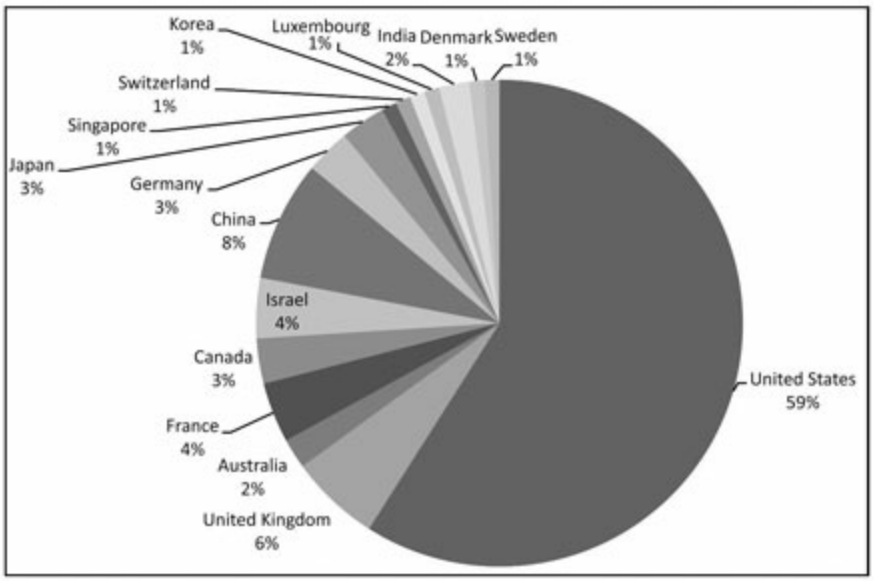

Figure 6.4 2009 Red Herring 100 Global VCs

Source: Red Herring staff, "Top 100 Global Venture Capitalists," *Red Herring* (September 11, 2009), http://www.redherring.com/home/26206, accessed September 11, 2009.

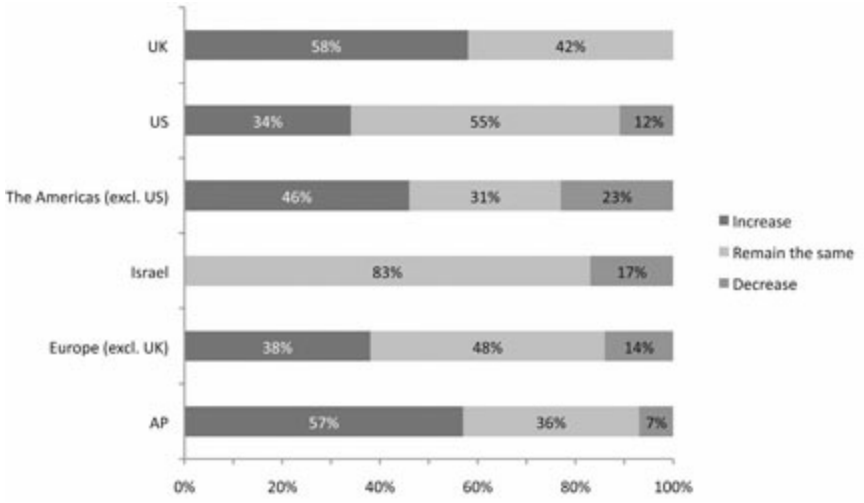

Figure 6.5

Source: Deloitte Touche Tohmatsu, "Weathering the Storm: New Strategies for Global Economic Condition," *Global Trends in Venture Capital 2009 Global Report 2009,* 7. Used with permission.

According to Deloitte, if you have a small venture fund, you tend to have big aspirations for future fundraising. However, if you already have a really big fund, there tends not to be such a need. This concept is highlighted in Figure 6.6.

The venture world is becoming far more global. One of the most dramatic developments over the past 10 years has been the global growth of venture capital to more than $80 billion by 1990. In 1979, venture capital was virtually nonexistent outside the United States. The venture capital market is still dominated by the United States. A 2008 survey by the National Entrepreneurial Assessment for the United States of America concluded that "the United States continues to be at or near the top of the group of innovation-driven economies in terms of early-stage entrepreneurial activities."[41] However, new entrants are gaining market share.

Investors in Venture Capital

Sting has a song called "Murder by Numbers." The same philosophy of the song title can be applied to venture capital. Institutions have far more money

than individuals, but when you pool or aggregate the individual investors, the numbers are quite large and meaningful.

The typical high-net-worth investor became interested in alternatives in the late 1990s. Private equity was an area many found to be intriguing and in fact was the leading response in a poll conducted by *Ticker,* in which participants were asked which area they wanted to learn more about (Table 6.5).

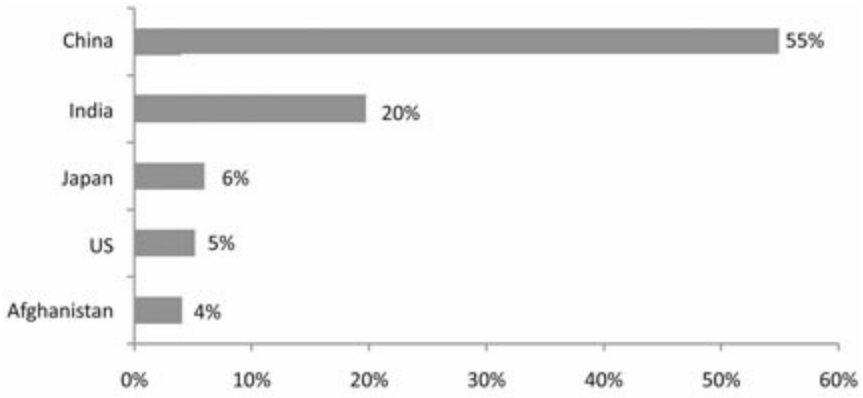

Figure 6.6 Top Five Locations for Venture Capital Going Forward

Source: Deloitte Touche Tohmatsu, "Global Trends in Venture Capital," 2009 Global Report.

Table 6.5 What Do HNWs Want?

Percentage of high net worth investors very interested in learning more about certain products			
Private equity	45.10%	U.S. taxable bonds	8.2
Annuities	33.9	U.S. equity	8
Wrap accounts	30.1	U.S. municipal bonds	7.8
Hedge funds	28	Life insurance	6.7
Funds of funds	26.7	Int'l equity (developed countries)	6.4
Collectibles	23.7	Int'l bonds (developed countries)	6.4
Offshore accounts/companies	21.2	Int'l equity (emerging markets)	4.4
Derivatives	14	Int'l bonds (emerging markets)	4.2
Precious metals	12.2	Custody accounts	0.6
Real estate	11.1	Money market accounts	0

HNWs, high net worths.

Source: Jackie Day Packet, "High Life," *Ticker,* March 1998, 37.

Pensions are large players in the venture world. Pension funds have the ability to put billions into an asset class. Table 6.6 lists funds among the top 200 with defined benefit assets in venture capital from *Pensions & Investments:*

Table 6.6 Funds Among the Top 200 with DB Assets in Venture Capital

Assets in millions as of Sept. 30, 2008	
Fund	**Assets**
California Public Employees	$2,609
New York State Common	$1,848
Pennsylvania Employees	$1,538
Verizon	$1,423
California State Teachers	$1,324
Washington State Board	$1,295
Colorado Employees	$1,160
Michigan Retirement	$958
Massachusetts PRIM	$901
New York State Teachers	$842
Ohio State Teachers	$819
Total	$14,717

Source: Pensions and Investments, January 26, 2009.

Table 6.7 Venture Investors: Past and Present

Former Venture	Current Venture
1. Pension funds	1. Pension funds
2. Foundations	2. Foundations
3. University endowments	3. University endowments
4. Angel investors →	4. Angel investors
	5. Foreign investors
	6. Corporations
	7. State-back venture funds
	8. Entrepreneurs/mentors
	9. Government (CIA)

Source: Author.

Besides venture funds, there are a growing and evolving number of new investors in venture capital, detailed in Table 6.7.

Private Versus Public Markets

The market is vast when it comes to private companies. In 1997, there were approximately 71,118 domestic companies with revenues of $10 million or more. Only 5,846 or 8.2% were public.[42] Private companies far exceed public companies. In 2003, there were 124,568 companies with revenues between $10 million and $15 million. Another 32,040 have revenue greater than $50 million. With the epic downturn in the market in 2008-2009, thousands of new companies will emerge.

Wave Riders

Finding great companies to invest in is neither an art nor a science. It takes a little from each. When it comes to identifying good companies, some skills can be learned, whereas others are innate. Ideally, an investor in venture capital (if it is a company and not a fund) is betting on two things: the company and the CEO. Envision placing a wager on a surfer and his surfboard during a surfing contest. The more you know about the surfer and his/her board, the better off you will be. Financials in the venture world can be completely and utterly unreliable. Pixar and Netscape are two classic examples in which the entrepreneurs made a world of difference despite the balance sheets, as detailed in *BusinessWeek:*

> Pixar Animation Studios, the computer animation company controlled by Steven P. Jobs, was initially to be priced at $12 to $14 a share. Demand was so strong that it went public on Nov. 29 at $22 and closed at $39. Jobs's 80% stake at the end of day one: $1.1 billion. Netscape Communications Corp., a maker of software for navigating the Internet, went public at $28 a share last August. Its stock price was up to $171 on Dec. 5, making Chairman James H. Clark a Netscape billionaire.[43]

Jobs and Clark know how to surf the alternative waves.

Contrarian View

Like many alternatives, the best time to invest in venture capital appears to be

when the equity market is at its worst. Valuations are low, and many new companies are formed by entrepreneurs. According to Ernst & Young in 2009, "The firms that managed to close their most recent funds in the last 6-18 months will likely see the best opportunities in years to come since valuations have come way down and entrepreneurs are forced to build their ventures in a capital-efficient manner."[44] It is possible to locate a diamond in the rough like Google. Good companies can raise money in any environment. Google did well after the tech bubble burst and the market was horrible over 3 years (2000-2002).

Google might have grabbed a lot of attention, but there are plenty of smaller companies that rode out the storm, perhaps some that many investors have never heard about, such as Digital River. When I met the CEO of Digital River, years before the S-1 was filed, the company was very small and was not even called Digital River. People I know invested in the company when it was private. Hypothetically, if an investor purchased shares of the company when it was private, the December 1996 income statement looked terrifying, with $111,000 in sales and $689,000 in net losses. When financials are too early to judge, one is left with the CEO, the technology, and projected sales, cash flows, and/or earnings. When there are little to no financials to examine, a numerical projection or pro forma financial statement is used to render a decision of whether to invest. Justin Camp, author of *Venture Capital Due Diligence,* describes the decision-making process this way:

> Pro forma financial statements are of critical importance to venture capitalists. The projections in such statements constitute one of the fundamental bases on which venture capitalists make their investment decisions. Pro forma financial statements provide venture capitalists with black-and-white pictures of companies' business models and of what those models might look like over subsequent years.[45]

Investors who took the time to understand the business model and to get to know the CEO of Digital River, Joel Ronning, were well rewarded. Joel is a first-class CEO. By December 2008, revenue was $394 million with $63 million net income. The stock performed well during two market crashes, one of which was technology related. The financials for Digital River from December 1996 to 2008 are detailed in Table 6.8.

Finding great private companies requires time and effort. Numbers are

important but they should not be the sole criteria. Otherwise, one could miss the next Digital River.

Exit Strategies

Investing in venture capital has two primary exits: mergers and acquisitions and IPOs. Today, however, there is a third area developing that might make it more difficult for individual investors to participate in private equity or venture capital unless they have $100 million to invest. The third leg of the stool is Rule 144A securities. Unlike IPOs, Rule 144A equity offerings are pre-IPO (PIPO) and not subject to Sarbanes-Oxley rules. According to a *Forbes* article, "In the two years before Sarbox went live in 2002, there were only two PIPO deals. Since then there have been 83, raising an average $282 million."[46] Rule 144A might be defined as follows:

Table 6.8 Digital River Income Statement Over Time (in Millions USD)

	Dec–96	Dec–97	Jun–98*	Dec–05	Dec–06	Dec–07	Dec–08
Sales	0.111	2.472	5.746	220.41	307.63	349.27	394.23
Net Income	−0.689	−3.485	−5.523	66.42	67.60	73.91	71.57

*August 1998 initial public offering.

Source: Author.

> Rule 144A, adopted by the SEC in 1990, permits companies to issue their securities without registration provided that all the purchasers are "qualified institutional buyers," i.e., sophisticated institutional investors such as hedge funds, insurance companies investment companies, and investment advisors with at least $100 million under management.[47]

What exactly is the reason for this explosive growth? The Committee on Capital Markets Regulation, an independent and nonpartisan research organization dedicated to improving the regulation of U.S. capital markets, completed a survey on February 13, 2009. The survey was directed to legal counsel representing a number of the largest Rule 144A offerings in 2007. They revealed five reasons for this growth: "more developed home markets and increased liquidity outside the U.S.; the burdens imposed by the Sarbanes-

Oxley Act; the risk of securities class actions; compliance with US GAAP; and liquidity of Rule 144A market."[48] Rule 144A has evolved from convertible debt offerings to companies trying to raise money but not file for an IPO.[49]

One of the most visible Rule 144A equity offerings was for Oaktree Capital Management:

> In a groundbreaking deal closed in May 2007, Oaktree Capital Management LLC, a leading private U.S. hedge fund advisory firm, sold a 15 percent equity stake in itself for $880 million. The deal is groundbreaking because it was not structured as an initial public offering (IPO), traditionally the only option for an equity offering of this size by a private company. Instead, it was structured as a private placement under Rule 144A of the Securities Act of 1933, which enables a company to market and sell securities through an underwriter to institutional investors without registering the offering with the Securities and Exchange Commission.[50]

Using Rule 144A basically enabled Oaktree Capital Management not to have to comply with the regulatory requirements typically found with an IPO because the platform is designed for investors with assets greater than $100 million, it will exclude quite a few investors.[51]

Essentially, there are now two primary exchanges:

- **Portal Alliance.** In September 2009, NASDAQ OMX and nine banks formed the Portal Alliance. The Portal Alliance is a group of private exchanges that work together to trade offerings by both United States and foreign-based companies. Originally, NASDAQ OMX and the banks announced the exchange in 2007 but put it on hold. The Portal Alliance consists of various broker-dealers (BofA Merrill Lynch, Citi, Credit Suisse, Deutsche Bank, J.P. Morgan, Morgan Stanley, UBS, and Wells Fargo) trading restricted stock as well as a trading platform, Goldman Sachs's GS TRuE.[52] The NASDAQ Web site describes the Portal Alliance as "an open, industry-wide platform to facilitate over the counter trading of 144A equity securities."[53] According to *Investor's Business Daily,* "NASDAQ OMX, investment banks, venture capital firms and foreign companies are all zeroing in on the 144A market, in which private

placements of company shares are sold mainly to institutional investors."[54]

- **SecondMarket (formerly Registered Stock Partners).** Launched in 2004 by Barry Silbert, SecondMarket is a brokerage that runs a platform for alternative asset classes. The pool of illiquid-asset buyers is limited to people with a minimum net worth of

$1 million and to institutions managing $100 million or more. Among secondary-market players, SecondMarket serves as the intermediary for the broadest range of illiquid assets, from auction-rate securities to limited partnerships to private-company stock. Facebook and Tesla Motors are two companies that trade on the exchange. *Investor's Business Daily* interviewed Eleazer Klein, a partner at the law firm Schulte Roth & Zabel, who characterized the value of SecondMarket, saying "VCs and private equity firms today are looking at nontraditional ways to monetize the positions that they have and find liquidity."[55] SecondMarket holds auctions among investors using a 3,500-member database. SecondMarket is a broker-dealer but does not take positions in any transactions. They charge from 2% to 4% of the sales price.

The development of exchanges to help investors to buy and sell private placements or investments in companies that are not traded on a public exchange is monumental. Typically, an investors would have limited exit strategies and a long period to wait. The private exchanges have the potential of becoming quite large and game changing for venture capital.

Venture Fund Size and Shape

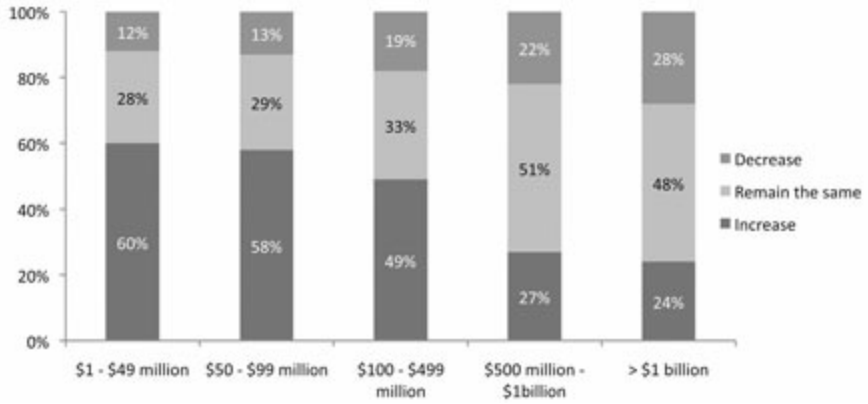

Figure 6.7 Projected Fund Size Compared to Current Fund (by Assets Under Management)

Source: Deloitte Touche Tohmatsu, "Weathering the Storm: New Strategies for Global Economic Condition," *Global Trends in Venture Capital 2009 Global Report 2009,* 12. Used with permission.

In the past, venture funds normally covered a much broader, diversified array of portfolio companies. A fund could have companies dispersed geographically or be in multiple sectors. Today, many have a niche like health care or technology. Some invest in early-stage and others in later-stage companies. Some venture firms invest for the short run, whereas others invest for the long run. Operationally, venture firms have needed to become far more focused. It's a bigger industry with a lot more competition, so you have to specialize. Still funds expand with size, as illustrated in Figure 6.7:

> But the desire to have a large fund is not just a domestic issue. Other areas around the world appear to have a greater desire for bigger venture funds. Fees might play a role in the desire to have many large funds. One should always ask what the goal is and the type of opportunity the venture firm is seeking. Venture funds all have a good idea of how they want to invest the money.

Venture-Backed IPOs

Table 6.9 shows that from 1980 to 2009, there were 7,456 IPOs. From 1980 to 1989, there were 2,065 IPOs. By way of comparison since Sarbanes-Oxley (2001-2008), there have been only 920 IPOs, a dramatic drop. Besides Sarbanes-Oxley, Glass-Steagall changed Wall Street forever when Bankers Trust was allowed to acquire Alex. Brown.

Table 6.9 Percentage of Initial Public Offerings with VC Backing

Year	# IPOs	# VC-backed IPOs	% VC-backed IPOs	Year	# IPOs	# VC-backed IPOs	% VC-backed IPOs
1980	73	24	33%	1998	284	73	26%
1981	197	56	28%	1999	477	267	56%
1982	80	21	26%	2000	381	239	63%
1983	449	115	26%	2001	79	29	37%
1984	178	45	25%	2002	66	14	21%
1985	185	38	21%	2003	62	24	39%
1986	397	78	20%	2004	174	78	45%
1987	291	69	24%	2005	160	45	28%
1988	102	33	32%	2006	157	53	34%
1989	113	40	35%	2007	160	65	41%
1990	110	44	40%	2008	21	9	43%
1991	287	111	39%	2009	41	12	29%
1992	412	139	34%	1980–89	2,065	519	25%
1993	509	172	34%	1990–94	1,722	598	35%
1994	404	132	33%	1995–98	1,891	641	34%
1995	458	183	40%	1999–00	858	506	59%
1996	675	259	38%	2001–09	920	329	36%
1997	474	126	27%	1980–09	7,456	2593	35%

Source: Jay R. Ritter, Cordell Professor of Finance, University of Florida, "Some Factoids about the 2008 IPO Market," research report, July 27, 2009, 6.

Table 6.10 is a *Forbes* review of the biggest underwriters. Out of ten underwriters for IPOs, only two exist today (Morgan Stanley and Goldman Sachs). Goldman Sachs and Morgan Stanley become bank holding companies. Lehman went bankrupt.

H&Q, Alex. Brown, Montgomery, and Robertson Stephens were four underwriters known as the "Four Horsemen" that catered to small- to medium-sized companies going public. The four underwriters served a viable purpose in that they created supply and fed demand. Big banks seldom want to swim downstream and take a small company public, which is why a number of small to mid-sized investment banks are prospering today: Oppenheimer, R.W. Baird, Stifel, Jefferies, Cowen, Raymond James, Janney, and others.

Prolonged reduction in IPOs or new companies being created in the United States will have dire consequences if not addressed sooner than later. Murray Beach, managing director at TM Capital, appraised the situation:

> The long term implications of the reduced number of IPOs are significant. The lack of funding options for the fastest growing companies points to a chronic weakness in the capital formation process in the

United States relative to its past history as well as to the rest of the world. Whereas the U.S. market has seen a sharp decline in IPOs the European and Asian markets have seen precisely the opposite trend, with IPOs in the UK, India and China setting records in both number and amount of capital being raised. The access to inexpensive capital is fundamental to economic growth, innovation, and high quality job formation. In the new global economy with hyper-competition in so many industries and markets, the need for capital is critical to best position U.S. businesses for the next decade. Losing its historic advantage in the capital formation process is a strategic mistake for the United States.[56]

Table 6.10 The Biggest Underwriters: 1996

		% of Issues That		Cumulative Performance		
Underwriter	Number of Issues	Went Up	Beat the Market	Actual (%)	Rel to S&P 500 (%)	Total Offer Value ($mil)
Goldman Sachs	159	76	55	196	169	$25,287
Morgan Stanley	147	71	59	229	205	15,949
Merrill Lynch	172	65	42	94	115	15,066
Smith Barney	122	69	52	76	123	8,775
Donald Lufkin Jenrette	109	60	44	57	109	8,706
CS First Boston	95	64	48	65	110	7,793
Salomon Brothers	66	61	41	94	121	7,339
Alex Brown & Sons	217	70	54	219	188	7,004
Lehman Brothers	78	68	49	98	144	5,996
Robertson Stephens	121	67	52	121	141	4,080

Source: Linda R. Killian, "The New Game in New Issues," *Forbes*, June 17, 1996.

According to Dealogic, issues on the Hong Kong/Mainland Exchanges raised $52 billion compared with only $26.5 billion in IPOs in the United States. Because larger deals bring more banking fees, it is unlikely that large banks will want to focus on small IPOs in the future. While Goldman Sachs focuses on large-cap IPOs, it did take a small company, Synchronoss Technologies, public in 2006. Synchronoss ended up being one of the hottest IPOs of the year. There will be exceptions, but small IPOs will most likely not be an area of focus for big banks. Middle market investment firms, on the other

hand, will likely have the best IPOs going forward because it is an area of focus and can be profitable for them.

Five Venture Deals and the Entrepreneurs Behind Them

1. Twitter. Twitter is a free communication site launched in 2006 by Biz Stone, Evan Williams, and Jack Dorsey. Twitter allows users to post brief updates called "tweets." The social networking space has mushroomed in recent years. Aside from the growing number of social networking sites—including Twitter, LinkedIn, Facebook, and MySpace—the number of users on each of these services has been growing quickly. The *Economist* reported the following regarding registered participants in mid-2009: "Facebook, one of the biggest networks along with News Corporation's MySpace, has seen membership

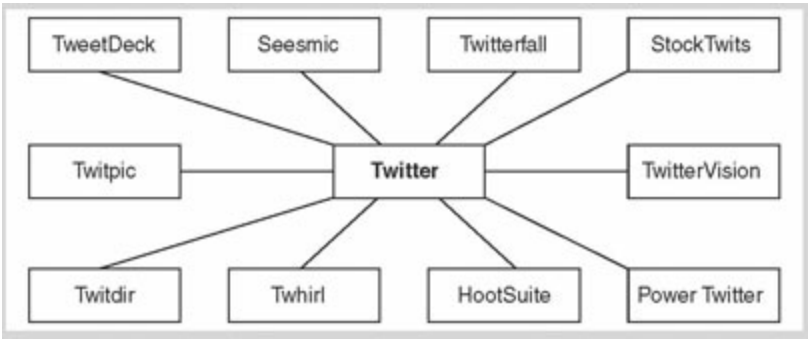

Figure 6.8

Source: Author.

leap from 100m in August 2008 to some 250m today."[57] Twitter, the youngest of these services, already has about 23 million users. The company raised $35 million in February and then $100 million in September. Twitter is growing the fastest. According to *Financial Advisor Magazine,* citing Nielsen.com: "Twitter is growing more than five times as fast as the second-fastest growing social networking site.... In February 2009, Twitter had a user growth rate of 1,382%, while Zimbio had growth of 240%, followed by Facebook with growth of 228%.[58] Many new innovative companies are being started that revolve around Twitter, detailed in Figure 6.8.

2. Avid. Avid is a molecular-imaging company. A recent profile described

Avid's proprietary targeting agents as being able to "allow radiologists to image amyloid plaques, and the company is currently testing these compounds in clinical trials for the detection of Alzheimer's disease....Avid's pipeline of imaging compounds has the potential to dramatically alter the clinical course of Alzheimer's disease, dementia, Parkinson's disease, and diabetes."[59] The company's CEO and president, Daniel Skovronsky, MD, PhD, established Avid as a spin-out from his graduate school, the University of Pennsylvania. Skovronsky began his work on the project in 1999, while he was still a student, then moved to the Science Center in 2005. Skovronsky knows how to ride waves and raised venture capital despite market uncertainties. At the time Skovronsky was raising money, he felt the future was quite uncertain. Nevertheless, his company was doing well, and he raised $34.5 million in a Series D financing on May 21, 2009, arguably one of the toughest times ever to raise money for a private company. As Skovronsky related to the author, "Business cycles come and go." Because the valuation of his company was flat and he considered it a bargain, Skovronsky invested some of his own money in the deal. He had skin in the game. As he describes it, "Flat is the new up 40%" (meaning that ordinarily it would be an up round, but due to market conditions, the round was flat). Existing investors put more money in as well, which is always a good sign for a company raising money.

3. Tengion Inc. Tengion was founded by Dr. Steven Nichtberger in 2003. The *Philadelphia Business Journal* called it "a platform for regenerative medicine that truly changes lives by creating neo-organs and tissues for patients in need of transplants."[60] In 2006, the company began its first phase II clinical trial for FDA approval of a bladder neo-organ, targeted specifically for children with spina bifida. Since its founding, Tengion has raised $123 million from private investors in addition to funding from institutional investors, including Bain Capital, Johnson & Johnson Development Corp., Deer-field Partners, Quaker BioVentures, Oak Investment Partners, HealthCap, and L Capital Partners. As the IPO market reached an historical low, Nichtberger followed Wave Theory and filed an S-1 to go public.

4. Groupon. One of the fastest growing Internet companies, Groupon, was a simple but brilliant idea for a Chicago based start-up. Andrew Mason, who started this company with the help of angel Eric Lefkofsky (InnerWorkings), grew the company to have 15 million subscribers in 30 countries. Groupon

combines the word “group” with “coupon” and offers online customers various services or products at steep discounts. The catch is that there is a time limit, and a certain number of customers must buy the same item on the same day. Groupon will sell anything from tickets to the King Tut exhibit in New York’s Time Square to the Gap which had an $11 million day.

Though a music major from Northwestern, Mason learned computer code and persuaded Lefkofsky to invest $1 million as an angel investor in his concept. His idea caught on like lightening. Groupon received $135 million in venture capital in April, 2010 to make acquisitions of competitors, from a number of investors including NEA and the Moscow investment fund Digital Sky Technologies.

5. Energy Recovery Inc. Energy Recovery Inc. (ERI) is a cleantech company started in 1992 by Leif Huage, an inventor. Huage’s invention that served as the foundation of ERI’s clean technology was inspired by his brother’s Norwegian farm. The brothers wanted to pump water from an adjacent fjord up about 100 feet to circulate around vegetable storage areas to keep the produce cool. However, Huage realized that it takes a lot of energy to pump water up 100 feet, which is wasted when it runs back down. He discovered that the “energy can be recovered in a pressure exchanger,”[61] a device he later marketed to desalination plants through his start-up ERI. Huage knows how to ride the venture capital waves.