9

VENTURE CAPITAL

VENTURE CAPITAL IS BACK!

While venture capital appears to have not been affected as adversely as publicly traded stock markets, it is somewhat deceiving because venture capital is private and usually lags the stock market either on the way up or down. A healthy IPO market is essential to US venture capital. IPOs, like commodities, revolve around supply and demand. Bernie Marcus cofounded Home Depot during a recession back in 1978 and took the company public in 1981. The company prospered, growing into one of the largest in the United States. Home Depot created thousands of jobs. Even Google, which was one of the best companies to emerge from the last recession (though public now), had a precipitous drop in stock price. Yet Google's stock price went back up with the market rather quickly. And how is Google doing? "Google has done quite well without its own social network. Its online search engine accounts for two-thirds of queries made in the U.S., and even more in parts of Europe. Its revenue is expected to surpass $36 billion this year."[1] Google and other technology companies amassed massive amounts of cash. "Google, which has $39 billion in cash, and Apple, which holds $76 billion including long-term investments, don't pay dividends."[2]

US companies are flush with cash. By mid-2011, US companies were sitting on a record cash hoard of more than $2 trillion.[3] These cash hoards tend to bode well for mergers and acquisitions because companies will look at both internal and external growth. Venture capital leads to growth. "Our research highlights that the existence of VC financing likely is a facilitator of high-revenue growth."[4] While it is hard to believe, I remember when

Google was a small private company struggling to get venture capital. "Nike is setting up a venture capital off-shoot to back startups focused on alternative energies and efficient manufacturing. The technologies could help Nike produce its products more sustainably and cheaply. The move takes a page from Silicon Valley, where technology companies have started venture arms."[5] Companies in the United States are sitting on billions in cash, and venture capital is a means to help them grow. Venture capital can be quite beneficial for individuals as well as companies.

Venture capital is fundamental to the economy. Jobs are created by the entrepreneurs building these fast-growing companies fueled with venture capital. According to the Kauffman Foundation, start-ups have been holding up since the Great Recession. "According to the 'Kauffman Index of Entrepreneurial Activity,' a leading indicator of new business creation in the United States, 0.34 percent of American adults created a business plan per month in 2010, or 565,000 new businesses, a rate that remained consistent with 2009 and represents the highest level of entrepreneurship over the past decade and a half."[6] Job creation remained an issue into 2011. According to the SBA, small employers have generated 65 percent of net new jobs over the past 17 years.[7] Government support for small businesses was lackluster. Funds that should have gone to help small business ended up being used by banks just to pay back TARP.

At the bottom of the stock market, investors lost anywhere from 40 to 80 percent depending on the country and the type of investment made. By 2009, the number of funds and capital committed had rapidly declined. The number of deals and median amount raised prior to an IPO peaked in 2007 and continued a downward spiral until 2009 (see Figure 9.1). Venture funds that invested during the Great Recession are likely to do well, especially if they reserved their cash and took time selecting the best companies they could find. A fund Union Square raised in 2008 was half invested as of March (2010), when it was generating a 23 percent net internal rate of return.[8] It took until 2010 for the Venture Capital wave to reverse. See Table 9.1, which shows venture-backed IPOs increasing in 2010.

VENTURE CAPITAL WAVES

There are three primary exit strategies for venture capital: M&A, IPO, or the private market. Even though it appears to be a short period of time,

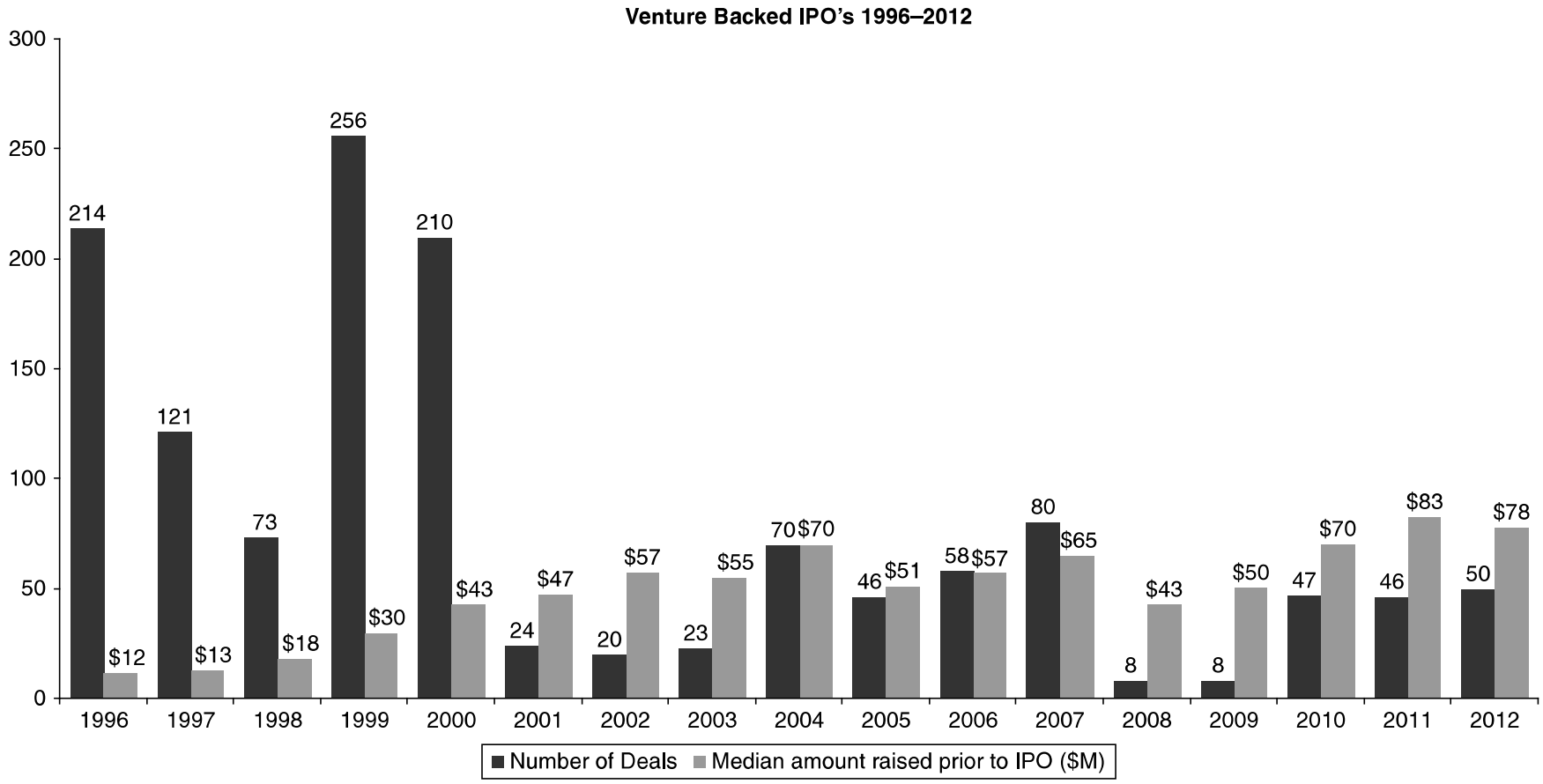

Figure 9.1 Number of Deals and Amount Raised Prior to IPO of Venture-backed IPOs.

Source: Author, using data from Dow Jones VentureSource.

Table 9.1 Fundraising by Venture Funds

Year	Number of funds	Venture capital ($M)
2003	160	$9,144.71
2004	212	$17,826.28
2005	234	$30,080.75
2006	236	$31,161.40
2007	235	$29,378.09
2008	215	$25,073.93
2006	161	$16,175.90
2010	174	$13,436.80
2011	187	$19,045.73
2012	189	$19,448.46
2013	35	$4,053.25

Sources: Author; Thomson Reuters and NVCA.

the time period from 2006 to 2010 shows both IPO and M&A waves. Waves were apparent with deal flow and equity into US venture-backed companies. Venture capital flowed back in during 2010, 2011, and 2012.

By way of comparison, $41 billion was raised in 2007 while only $11.6 billion was raised in 2010. "Hit by the financial meltdown and recessions, many venture capitalists scrambled in 2009 to shut down their weaker investments and conserve cash. New investment activity declined, and profits from IPOs and acquisitions were few and far between."[9] Deal flows for 2009 included insider rounds, which artificially made the year appear better than it was because the same people who invested in the companies were investing again and these were not new deals. "In the second quarter of 2009, VC's nationwide did 53 percent of their deals as insider rounds, not bringing in any new investors to participate in the funding, according to a data mash-up provided by Dow Jones VentureSource."[10] An investor in venture capital should pay attention to both M&A and IPO waves. There are times to sell and periods of time where it is best to wait.

SURFING IN A HURRICANE

The idea of investing in private equity in 2009 was about as attractive as surfing in a shark tank or throwing yourself off an ocean liner while strapped to an anchor. 2009 was Armageddon for investors. News articles during this time period were pessimistic, using words such as "triage, ailing, plunged, slump, or bad." As one can plainly see in Figure 9.2, during 2008

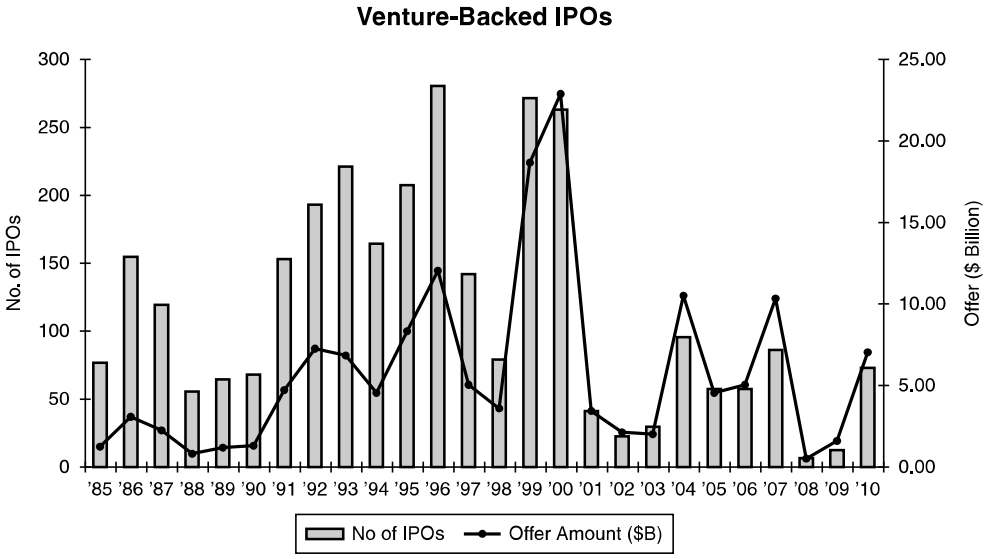

Figure 9.2 Number of IPOs and Offer Amount of Venture-backed IPOs.
Source: "National Venture Capital Association Yearbook," 2011, p. 14.

and 2009, venture-backed IPOs were not too popular. Some even thought venture capital was over. However, Wave Theory tells us that this was precisely the best time to invest. Despite the negative media, Eric Lefkofsky seeded Groupon with $1 million in 2008, which might have appeared dubious considering the market collapse.

Those who bet the farm can make a lot of money. "In asset markets, the richest individuals may well be those who placed large bets on very risky gambles and won. Their success would naturally tend to reinforce their confidence in their own hunches whether or not such confidence is justified."[11] Placing a million-dollar bet on any company is extremely risky. Even if you feel that you know the business or your background gives you an edge, it is still risky.

While good companies will grow regardless of market conditions, venture capital can offer exceptional buying opportunities in bad times. For example, Groupon was founded in 2008 and offers subscribers coupons with email. When I first reviewed the company, I thought it was one in a few that would bode well in the middle of a recession. There are "daily deals" for services such as massages at a spa, goods such as clothing at GAP, or even dinner at a local restaurant. Yet Eric knew precisely what he was doing, as any experienced surfer in the VC waters knows. Groupon was neither the first company he invested in nor the last. Rather, it was one of many investments. Lefkofsky is listed as the largest shareholder, with

21 percent of the shares, and earned a seat on the Forbes 400 list for his venture capital investment.

NEVER BE LATE TO A PARTY WITH VENTURE CAPITAL

Groupon is an excellent example of how venture capital can be lucrative for investors, a lesson to observe when to sell, and distinguishing the difference between investing in a private company and buying IPO shares. Buying IPO shares gives you exposure to early stage companies but is not buying an alternative investment. Groupon raised $700 million with the sale of 35 million shares (5 percent). "The Chicago company priced its IPO at $20 a share, according to people familiar with the matter, above the range of $16 to $18 a share that it set two weeks ago. At $20, Groupon would be valued at nearly $13 billion before its Friday debut on the Nasdaq Stock Market."[12] Valuation of a private company is never easy but pricing an IPO too high can often lead to poor results.

In less than one year, Groupon lost half its value. Yet Groupon was not the only Internet company that filed to go public. Investors were drawn to a handful of Internet names in 2011. A number of Internet IPOs hit the market: Pandora, LinkedIn, Groupon, and Zynga. Mutual funds bought shares of companies like Zynga. "In February 2011, heavyweights Morgan Stanley Investment Management, Fidelity Investments and T. Rowe Price Group Inc. together invested $490 million in the maker of games including 'FarmVille' and 'Words with Friends,' valuing Zynga at $10 billion. The investors paid $14.03 per share, according to Securities and Exchange Commission filings."[13] Figure 9.3 is the stock performance of the Morgan Stanley and Goldman Sachs lead managed IPO for Zynga.

Decent IPOs will continue despite some of the flaws found with certain troubled IPOs. Though it has not yet filed to go public, Dropbox, with only 70 staffers but 50 million users generating $240 million in revenue for 2011, grosses nearly three times more per employee than even Google, which might explain why the company was able to raise a whopping $250 million on a $4 billion valuation.[14] Yelp filed an S-1 on November 17, 2011 for $100 million. The company is a leading website for online local reviews and has been growing at around 80 percent each quarter of the year.

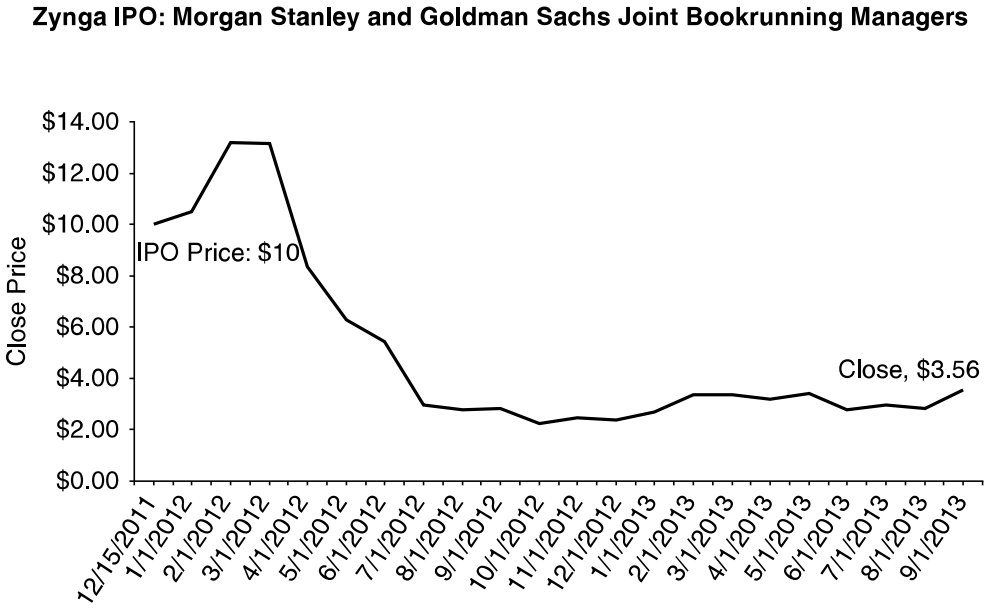

Figure 9.3 Morgan Stanley and Goldman Sachs Joint Booking Running Managers of Zynga IPO.

Source: Author.

GLOBAL VENTURE CAPITAL AND IPOS

Internet IPOs are not just domestic. They are global. For example, Russia appears to be making quite a bit of progress with the Internet as well as giving investors the opportunity to participate in new and attractive IPOs. Russia overtook Germany as the market with the highest number of unique visitors online.

Russia also merged two stock exchanges, which might become a financial hub. "Clearly, internet investing is going global and the West is losing its monopoly, not just in thinking up clever ideas for web businesses but in financing them."[15] Russia appears to have learned from the United States with regard to how venture capital works and how companies go public (before Sarbanes-Oxley and other regulation). "Another factor favoring investment in start-ups is the level of government support for foreign and domestic investment in private equity: at the federal and regional levels, the Russian state is investing tens of billions of dollars in innovation."[16] Russia supports Internet companies going public and is very much pro-business. Yandex raised $1.3 billion on Nasdaq in May 2011 and Mail.ru raised more than $900 million in London in November 2010. As of 2011, Internet users in Russia exceed that of Germany, France, Britain, Italy, Turkey, Spain, and Portugal.

While Russia is dependent (or at the mercy of) on US banking techniques, they will likely continue to learn the IPO process. "Direct state financing is also provided through the Russian Venture Company, which has launched 12 hi-tech funds in Russia and abroad. Three years ago, fewer than two dozen funds were operating in the country, but now there is more money in Moscow than in many other innovation hotspots."[17] Areas in which the United States stumbled could easily be avoided by other nations.

LEARNING WHERE TO SURF

Prudent investors with venture capital know when to buy or sell. Frequently, a new area will spawn other ideas and new companies will emerge. In 2013 and the beginning of 2014, venture dollars flowed into a number of interesting new areas such as Sustainability, Big Data, 3D Printers, Virtual Realty, Bitcoin, Cardio Companies, Storage Companies, Medical Marijuana, and Cloud Computing. It is impossible to predict the size of a new area but all of these areas appear to have potential. Sometimes new areas for venture capital can run into problems and fizzle out of favor. Two controversial areas attracting investors are Bitcoin and Medical Marijuana.

Bitcoin advocate Charlie Shrem was arrested and charged with a money-laundering conspiracy. Bitcoin is a virtual currency that started as an experiment and gathered not only a lot of support but also investors such as Cameron and Tyler Winklevoss known for Facebook. Bitcoin also lost over $5 billion in value when a bug affected some of the exchanges. One of the exchanges, Mt. Gox, an exchange in Tokyo, halted withdrawals. On February 14, 2014 about $2.5 million was apparently stolen from Silk Road 2.0, a website that is used to trade mainly illegal drugs.[18] The virtual currency shows the perils of getting in too early. Mt. Gox filed for bankruptcy in Japan, saying it lost nearly half a billion dollars' worth of the virtual coins due to hacking into its faulty computer system.[19] While Bitcoin might ultimately be successful, regulation is needed because it is an exchange. The bankruptcy and other early dilemmas hurt investors in any private companies devoted to the virtual currency as well as those who bought the currency on an exchange. Early investors must always be cautious, especially with controversial companies.

Another controversial area is Medical Marijuana, which has led to many new companies and attracted investors. More than 20 states allow the sale of medical marijuana. Colorado and Washington have even legalized the drug for recreational use. Entrepreneurs are starting companies that make equipment to grow marijuana, vending machines to sell marijuana, and other innovative ideas. Bloomberg BusinessWeek describes these entrepreneurs: "A whole new pot economy has grown up, complete with cannapreneurs and even private equity financers."[20] Investors put so much money into penny stocks involved in this area that it created a billionaire on paper according to the LA Business Journal. However, this area is very high risk. Federal law is different from state law. Federal law still prohibits possessing, using, or selling marijuana according to the 1970 Controlled Substance Act, which classifies marijuana as a Schedule I drug. Early in February 2014, the Treasury and Justice Department issued guidance for banks concerning marijuana-related businesses. "The Financial Crimes Network ("FinCEN") is issuing guidance to clarify Bank Secrecy Act ("BSA") expectations for financial institutions seeking to provide services to marijuana-related businesses. FinCEN is issuing guidance in light of recent state initiatives to legalize certain marijuana-related activity and related guidance by the U.S. Department of Justice ("DOJ") concerning marijuana-related enforcement priorities."[21].

One wave that is clearly gaining momentum is Cloud Computing. "Cloud Computing is a sharp departure from the status quo. Today most companies own their software and hardware and keep them 'on premise' in data centers and other specialized facilities. With Cloud Computing, in contrast, companies lease their digital assets, and their employees don't know the location of the computers, data centers, applications, and databases that they're using."[22] Waves can vary in size and Cloud Computing appears to be quite large. Cloud providers have their customers access data and software off their servers via the web. In 2011, IBM introduced its Hadoop-based Infosphere BigInsights cloud software with big data-processing capabilities including scalability and flexibility in handling fast-growing and non-relational data such as social network comments, weather data, log files, genomic data, and even video.[23] The growth potential for Cloud Computing is mind boggling. A small, fast-growing

company that went public, Salesforce.com, reached a stock market value of $13.3 billion as of December 16, 2011. By January 2013, Salesforce.com exceeded $24 billion in market cap. No only is there competition amongst Amazon, Apple, Microsoft, and other 800-pound guerillas, but numerous smaller companies are working on the cloud. "As with any online or hosted service, security, reliability, availability, and performance are the biggest concerns."[24] One of the reasons Cloud Computing has become of so much interest is because it ties into mobility. Cloud Computing is necessary for all the data storage generated by cell phones.

There are many new Cloud Computing companies filling needs. For example, "Cloud Computing startup enStratus Networks Inc. raised $3.5 million in venture capital in a round led by El Dorado Ventures."[25] The start-up enStratus offers cloud governance by leveraging existing IT policies and procedures. Also, cloud networks have emerged, which essentially serve as cloud backups. "Don't look now, but as telecom companies acquire Cloud Computing vendors, we're seeing the beginning of cloud networks: chains of linked data centers owned by one company that let two or more data centers back up one another."[26] Even the CIA is getting into Cloud Computing with private clouds. "The CIA is now working toward general-purpose data center architecture—a private cloud—in which any of the servers could host a variety of workloads. And it's working with others in the intelligence community to create shared computing resources that all intelligence agencies can access."[27] The Pentagon has the largest IT budget out of any organization in the world and will spend approximately $38.4 billion in fiscal 2012. Security for the cloud is needed. A private company called Gazzang provides security solutions and operational diagnostics that help enterprises protect sensitive information and monitor performance in cloud environments. Cloud Computing companies are going public, such as Fusion-io, a data storage company, went public on June 9 at $19.00, raising $234 million. Fusion-io helps speed up storage for the cloud. As an example, the company helps power the iCloud for Apple and provides higher information density with Facebook. Similarly, FusionStorm Global Inc. filed for an IPO in August,2011 to raise $175 million. In 2010, they had gross profit of $123 million on revenue of $727 million. FusionStorm offers integrated IT solutions, including data

storage, network optimization, and cloud services to businesses and local governments. Another cloud company, Guidewire Software, provides a core system suite for the global property-and-casualty insurance industry covering underwriting, policy administration, billing, claims, and reinsurance management. The software produces savings and faster response to claims.

BEHAVIORAL FINANCE AND FUNDS RAISING CAPITAL

Strong venture firms can raise money even in difficult times to pursue new venture capital developments. Behavioral finance is revealing more about various alternative investments. For instance, papers have been written about venture capital such as "Specialization and Success: Evidence from Venture Capital" by Paul Gompers, Anna Kovner, Josh Lerner, and David Scharfstein on how organizational structure affects behavior and outcomes. "We find that venture capital firms with more experience tend to outperform those with less experience, and that both firm and person level industry experience matters for investment success."[28] Knowledge is power with venture capital. Investors in venture capital must carefully consider the organization they choose to invest with since they vary.

Battery Ventures closed its eighth fund in July at $750 million. Another well-respected name in venture capital, NEA, raised a venture capital mega-fund in 2009: "NEA's $2.48 billion fund is 20 times the size of the average venture fund raised last year and is the largest launched since the financial crisis."[29] Later, in May 2012, NEA announced the closing of another giant venture fund. By mid-2012, NEA closed on a $2 billion fund. Union Square, which raised a venture fund in 2008 during terrible market conditions, might raise a new fund in 2011. "Twitter Inc. investor Union Square Ventures is laying the groundwork to raise another $150 million to $200 million that it could plow into new technology companies, people familiar with the plans said."[30] Summit Partners raised a fund that exceeded the last raise they had. "Boston-based Summit Partners has closed its third venture capital fund, at $520 million, well above the firm's prior VC fund."[31] Overall, despite the new wave of venture capital, few funds were able to raise funds as reported by *Pensions and Investments*: "Venture capital is gaining

a little love and some new money from institutional investors following a decade-long stretch of poor returns and client withdrawals. Only a select few managers are benefiting."[32]

NEW AREAS

Timing with alternative investments is something a prudent investor should not neglect. Finding a new wave with the right venture capital fund can make a world of difference with performance. Performance with venture capital continues to favor the successful venture firms with established track records. "Forty-one percent of venture fund managers managing a top quartile fund go on to produce another top quartile fund with their next effort, with a total of 73% of managers performing above the median benchmark with their successor fund."[33] However, a number of new venture firms entered the picture with compelling stories. These firms are likely to raise assets and prosper. Some are run by successful entrepreneurs with skin in the game. Others are highly specialized. Like all other alternative investments, venture capital moves in waves. See Figure 9.4, comparing the IPO market with increased unemployment. In 2009, there were just 12 IPOs and 2008 had an anemic 6 IPOs. When the stock market plummets and the going gets tough, innovation flourishes and entrepreneurs build great companies.

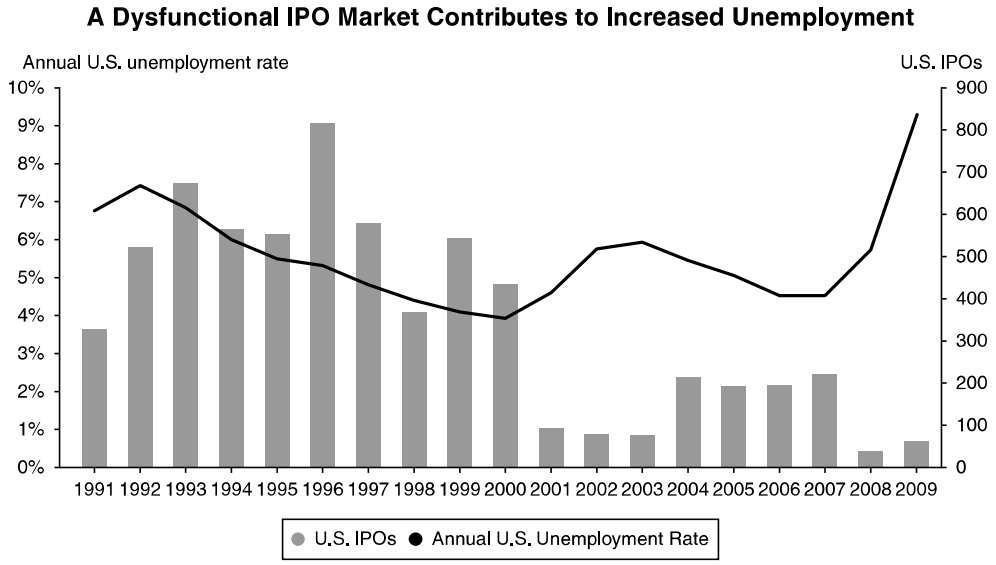

Figure 9.4 IPO Market and Unemployment.

Source: David Weild and Edward Kim, "Market Structure Is Causing the IPO Crisis – And More," Capital Market Series, IssuWorks and Grant Thornton, June 2010, p. 1.

Technology companies typically account for almost 30 percent of IPOs in a given year and IPOs are key to job growth. For instance, A123 Systems went public in September 2009, the only VC-backed company to go public. A123 is a smart-battery company. This alternative energy makes lithium-ion batteries for electric cars and is part of a segment of tech companies called clean technologies or cleantech. While cleantech looked like it was finished when the market collapsed in 2008, I pointed out in my previous book that it very likely would come back and possibly be stronger. I believe now there is a second wave of cleantech, or Cleantech 2.0.

Disruptive market forces could, over many years, enable clean technologies to supplant fossil fuel the way the PC replaced the mainframe. Two high-profile VCs, John Doerr and Vinod Khosla, are dedicated to clean technologies: "Now the former colleagues are competing to fund the most promising startups in clean technology, a potentially lucrative but risky field many believe could lead to Silicon Valley's next boom."[34] Khosla raised a large fund dedicated to clean technology. Khosla Ventures closed a billion-dollar fund by the end of 2011.

Government support or lack of it can affect next-generation technologies: "Governments have long been central in advancing the development of next-generation technologies . . . Government support is most effective when it's directed not just at nascent technologies but also at nascent business models."[35] The US Department of Energy (DOE) helped support both Tesla Motors and Fisker Automotive in 2009. As described by the Wall Street Journal in "Venture Capital: New VC Force": "The DOE hopes to lend or give out more than $40 billion to businesses working on 'clean technology,' everything from electric cars and novel batteries to wind turbines and solar panels. In the first nine months of 2009, the DOE doled out $13 billion in loans and grants to such firms."[36] Fisker won loans from the federal government for approximately $528 million while Tesla Motors got a $365 million DOE loan to build electric cars. "Fisker has raised more than $1 billion in funding since it was founded in August 2007, and last year it bought a former General Motors Co. assembly plant in Wilmington, Del., for $18 million. That's where it will manufacture Project Nina, as well as future vehicles such as a hardtop convertible coupe and possibly a crossover vehicle."[37]

SURFING WITH THE GOVERNMENT

Government intervention with venture capital can be positive. In-Q-Tel, the U.S. Government's venture arm, was run by Buzzy Krongard, the former CEO of Alex. Brown, which undoubtedly explains why the venture was successful not only in helping the United States achieve a lead in technology for national security, but also in the performance of its investments. Under Buzzy, many companies that the U.S. Government invested in, went public or were sold. As a Director at Alex. Brown, I worked with numerous technology companies that went public. However, there is a wrong way for government to be involved with venture capital. The most obvious is when politicians force an agenda or meddle with the venture capital process. The legendary venture capitalist Tom Perkins forecasted that all solar companies like Solyndra would fail. "Government venture capital can't 'conjure up the 'animal spirits' of capitalism: 'Let's make money!' Perkins said. Instead, government has social objectives or, in the case of the Solyndra loan guarantee, lofty goals like reducing the need for oil. But the biggest reason, Perkins said, is that government VC investing in 'done by people who are not qualified. I almost said 'incompetent.'"[38]

While too early to tell, one interesting attempt by the U.S. Government to encourage investment in early private stage companies is called the JOBS Act (Jumpstart Our Business Startups)."When Congress, in an almost unheard-of display of bipartisanship, passed the JOBS Act in April, crowdfunding seemed poised to boom. In 2011 alone, crowdfunding platforms helped raise about $1.5 billion for start-ups and other projects, according to Massolution, a research firm covering the space."[39] Yet no guidelines were put in place. Rules cannot be followed if they are not clearly disseminated. The most significant bits of the act are bottled up at the SEC, which is responsible for transforming laws into rules that can actually be implemented, and the SEC is swamped with rule-writing duties: the JOBS Act adds to an in-tray already bulging after the passage of the Dodd-Frank act in 2010.[40] Meanwhile, quite a few websites were started to benefit from the new law and it appears that thousands of companies are seeking funds:

> Many crowdfunding sites have been cropping up to cash in on the new law. Once the JOBS Act rules are in place, at least 100 crowdfunding companies are expected to launch, says Kevin Berg Grell,

who runs an accreditation program for the professional association Crowdsourcing.org. By the end of 2013, that number could double, he says. But these new companies have found themselves running headlong into a regulatory thicket.[41]

In some cases, shares are purchased but with others, one will receive merely a product or service for free, not too dissimilar from a donation where one gets a dinner or complimentary gift bag."Kickstarter doesn't give the funder a stake in the project. Equity crowdfunding allows funders to buy shares in small startups. Venture capital is limited to individuals with $1 million net worth."[42] Kickstarter is not a company for those looking for venture capital type investments."For all the buzz about Kickstarter—it has raised more than $230 million for 23,000 'projects' since 2009—it does not sell equity…Instead, the public makes donations and gets some sort of premium reward."[43]

Not much transpired with regard to rules."In short, all legislative affairs activity and regulatory inactivity has occurred in the equity-based crowdfunding space. As a result, micro-finance and debt-based crowdfunding has, to date, been able to flourish without the promotion and attendant scrutiny of the Administrative Branch."[44] Like a lot of government regulation, there are areas that will be overlooked or not well thought out. "A second JOBS Act provision will allow widespread advertising and marketing of private offerings, formerly restricted to wealthy investors."[45] While it is too early to tell, the JOBs Act might be destined for trouble. "For small investors it will be either a great "level-the-playing-field" opportunity to get in on the ground floor of promising startups or a federally sanctioned invitation to fraud on a scale not seen since the boiler-room days. Or both."[46] Table 9.2 is a useful chart differentiating the three types of crowdfunding.

Table 9.2 Types of Crowdfunding

	Types of Crowdfunding
1. Lending-based crowdfunding	• Investors are repaid over time • Investment is usually in proportion to risk
2. Donations/gift-based crowdfunding	• Money is given to a business, with no expectation of ownership or a return on investment • Company might give a product to investors
3. Equity-based crowdfunding	• Accredited investors receive a percentage of the company in return for investment

Source: Author.

The JOBS Act might also affect other alternative investments besides investment going into private companies. For example, the JOBS Act involves commodities. Like venture capital, commodities are an alternative investment. Commodity pools are often called managed futures funds and marketed as privately placed limited partnerships. "Finra, an independent regulator for all U.S. exchange markets and brokers, also was required under the JOBS Act to set its own equity crowdfunding rules. But unlike the SEC, it wasn't given a deadline."[47] If an investor does not understand the venture capital or IPO process, it will be that much more difficult; they will most likely fail to comprehend the ramifications and ultimately lose money.

Government involvement with business can adversely affect alternative investments. While venture capital waves are transparent and the market has improved, it is also evident that the governments' idea for Glass-Steagall and Sarbanes Oxley were somewhat ill-conceived. Solyndra is a classic example. "The White House this month made final a $197 million guarantee for SolarPower Inc., a maker of lightweight solar panels in San Jose, Calif. Two more guarantees for solar manufacturers valued at combined $425 million are due to be approved before a Sept. 30 deadline."[48] The US administration made the decision to keep giving billions of dollars to solar projects regardless of the outcome. The US Government allocated tens of billions for these futile solar projects. In 2009, over $60 billion was allocated for the stimulus package specifically for renewable energy and transmission projects. In September 2011, the "Energy Department completed a $737 million loan guarantee to Tonopah Solar Energy and an additional $337 million for Sempra Energy. Tonopah Solar is a wholly owned subsidiary of SolarReserve."[49]

Cleantech showed signs of life in 2011. As the SF Business Times stated in "Cleantech VC funding bounces back," "Venture capital investing in clean technology companies rebounded in the first quarter with solar, biofuel and other 'green' firms garnering $2.6 billion from investors."[50] Cleantech spread across the country and appears to be a viable movement not just on the west coast. For example, Greentown labs, a nonprofit incubator for clean-technology startup companies started in Boston mid 2011. Cleantech has morphed into new businesses as well as created jobs in areas

like San Francisco: "The San Francisco metropolitan area, which includes Oakland and Fremont, ranks No. 1 out of the top 100 metropolitan areas for the number of cleantech jobs it has, with 13,917."[51]

It is important for investors to be cognizant of what direction a government is taking with a certain sector or industry. A government can destroy or help an area. However, a government might wade into an area they should not be in or have no clue about. Therefore, an investor should be very careful about investing in the footsteps of a government. Solar energy is a good example. Previously, the White House touted Solyndra as a leader with its green jobs program: The $535 million government loan guarantee so prized by the solar-panel maker may have ultimately contributed to the company's undoing, say investors with knowledge of the company's operations. The new factory built with DOE funds foisted fixed costs.[52] Taxpayers lost $535 million and the ordeal was labeled Solargate after executives pleaded the Fifth Amendment. Many venture capital firms and other investors backed solar companies following in the government's footsteps. Some were burned.

The US Government has made quite a few business blunders over time. "Politicians make political decisions, not economic ones. Thus history is littered with government investment disasters. The Clinch River Breeder Reactor, authorized in 1970, was estimated to cost $699 million. The project ran through $8 billion before, unbuilt, it was canceled in 1983."[53] There were numerous repercussions to Glass-Steagall being repealed. Many former heads of large banks have concluded the act was problematic. "The former Citigroup chairman now believes it was a mistake to scrap the Glass-Steagall separation of commercial and investment banking. As stunning as this admission was, he was only catching up with what markets already think."[54] While there is a long list, research and IPOs was an area that suffered.

Going against a wave is fruitless, similar to driving the wrong way down a number of one-way streets. Investing in solar was hopeless, like driving in the opposite direction on a one-way street. Evergreen Solar Inc. filed for bankruptcy in August 2011 after receiving state and local subsidies. Competition from China as well as new technologies made the space immensely competitive. Politicians steering money blindly, to profit

themselves or gain political contributions, will rarely produce meaningful results. In other words, the companies they support will most likely fail. One does not need to be Descartes to know that if you build a house or anything else using a weak foundation, the result will be lackluster. Politicians made green jobs a political agenda. "President Obama has made green jobs a centerpiece of his economic policy. But plunging prices and the August bankruptcies of Evergreen Solar, SpectraWatt, and the now-infamous Solynda raise doubts whether made-in-America solar products can compete with Chinese rivals."[55] It would be ill-advised to discount China for improving upon their technology prowess. "As more US tech startups see China as an essential place to do business, increasing numbers of Chinese investors are funding them and helping them expand to the mainland. Chinese venture capital firms backed 28 US companies in 2011, nearly double the number two years earlier, according to Dow Jones VentureSource."[56] While the United States is the global superpower, China has been making great strides in many fronts involving technology. For example, China is working toward a permanent space station and made great progress in November 2011 when the Shenzhou-8 spacecraft docked with the Tiangong-1 laboratory module. Years ago, an investor could make an investment in venture capital here in the United States without observing the rest of the world. However, that is no longer the case. Venture capital is global. Presently, there are signs of a new wave of global venture capital. The wave that is forming is domestic but has the potential of expanding abroad.

RIDING THE RIGHT WAVE

After the repeal of the Glass-Steagall Act, which had separated commercial from investment banks, banks did not need to provide as much support like research and liquidity to attract underwriting business. IPOs in the United States are way down from their historic high of 4,085 deals in 2007: "But IPOs are still out of reach due to the high cost of public-company reporting introduced by Sarbanes-Oxley legislation, as well as the lack of sell-side analysts to pump up IPOs for investors since Wall Street's settlement with former New York Attorney General Elliot

Spitzer."[57] Compared to the year 2000, where there were 8,039 deals and $99,223,690,200 invested, 2011 is anemic. The US listings are down 43% since the peak in 1997 (Table 9.3).

Venture capital plays an important role in any economy. Venture capital is evolving and helps find new areas that one might have little knowledge about and presents a huge growth opportunity. One of these new areas, which I call "Cardio Companies," involves the heart and cardiovascular disease. Over one million Americans die from cardiovascular disease, which represents around 40 percent of all deaths for those 35 and older. Heart disease is not just domestic, it is a problem everywhere. Heart disease is the world's biggest killer, claiming 7.3 million lives in 2008. The majority of Americans are overweight. Obesity is a problem in the United States. The condition is associated with cardiovascular disease and other ailments. In New York the number of major steakhouses featured in the Zagat guides has increased sevenfold over the past 30 years, to about 125 today.[58] Every 34 seconds a heart attack occurs and every 60 seconds a death occurs because of heart disease.

Table 9.3 Number of Venture Capital Deals by Year

Year	Number of deals	Amount invested
1995	1897	$8,012,866,300
1996	2642	$11,348,442,100
1997	3223	$14,982,750,400
1998	3733	$21,510,506,900
1999	5605	$54,966,243,300
2000	8044	$105,223,794,400
2001	4590	$40,975,854,300
2002	3201	$22,140,744,500
2003	3019	$19,677,047,200
2004	3216	$23,235,111,700
2005	3299	$23,604,559,200
2006	3879	$27,588,487,900
2007	4211	$31,882,616,100
2008	4163	$29,920,614,800
2009	3140	$20,380,904,900
2010	3622	$23,314,765,100
2011	3937	$29,462,811,000
2012	3698	$23,524,895,000

Sources: Author; PricewaterhouseCoopers/National Venture Capital Association Money Tree Association Report, Data: Thomson Reuters and National Venture Capital.

Venture capital flows to areas with growth potential. Cardio companies fit this description.

One day we might see a venture fund focused on health care and perhaps even has a focus just on cardiovascular disease. "Venture capital will most likely become highly specialized again."[59] Behavioral finance concurs with this sentiment. "We find that generalist firms tend to *underperform* specialist firms. Generalist firms do not appear to allocate capital as well across industries, and may also underperform in their investments within an industry."[60] The risk for venture firms specializing in an area such as cardiovascular disease is that the matter is highly complex and there is no cure. "Coronary heart disease, which affects 16.3 million Americans, refers to a range of conditions caused by fat build-up in coronary arteries that can lead to chest pain, heart attacks and death. It kills more than 405,000 people a year, including about 189,100 women, according to the National Heart, Lung, and Blood Institute."[61] The market potential is vast but finding a solution is complicated. Currently, there is no easy solution to remove plaque from blocked arteries, like Drano unclogging pipes for a sink.

A lot of venture capital deals involve new technology. Cardio companies involve new technology. While a stress test might reveal a problem with the heart, a heart imaging test called computed tomographic (CT) angiography or coronary computed tomographic angiography (CCTA) is much more detailed and helpful in revealing a complication. CT angiography is a fast-growing technology for identifying cardiovascular problems. Technology is evolving rapidly in this area. The Wall Street Journal reported a new strategy to revive victims of heart attacks, which would improve a patient's odds of survival. "The capnograph, which measures carbon dioxide being expelled from the mouth of the patient, can tell rescuers when further efforts at cardiopulmonary resuscitation, or CPR, are futile or whether they should be continued."[62] Joshua Smith and Pramod Bonde developed the first wireless-powered, driveline-free heart pump called the Free-Range Resonant Electrical Energy Delivery System, or FREE-D. Many people with heart attacks fail to get help right away and many are reluctant to go to a hospital, which is a mistake.

While high risk, small companies frequently merge or get acquired. Selecting the leader can be rewarding for investors. An emerging area

such as cardio companies can lead to many new small companies being formed. Careful selection is important, especially in a new area.

A sampling of ten private cardio companies I have observed might illustrate how a new area of venture capital can be formed are as follows:

1. *Infraredx*, Burlington, Massachusetts, analyses plaques. Infraredx is the only company with an "intravascular imaging system that is FDA-cleared for the detection of lipid core plaques, which are known to complicate stenting."[63]
2. *Corventis* is a company in San Jose, California, that makes wireless heart-monitoring and found a way to put sophisticated monitoring technology into patches. "The company, backed by venture-capital firms such as Kleiners Perkins Caufield & Byers, makes a waterproof Band-Aid-like patch that patients wear on their chests for up to a month. The device monitors their heart rate, fluids and respiratory activity. It can detect heart problems such as arrhythmias and transmit data wirelessly over a cellular network."[64]
3. *CardioVax LLC* is a start-up company based in Princeton, New Jersey, run by CEO Oye Olukotun. The company is dedicated to advancing technologies from discovery to routine clinical practice, and specifically to developing novel treatments for cardiovascular disease caused by atherosclerosis, an accumulation of fatty deposits in the walls of blood vessels.[65] CVX-210-H has reduced the progression of atherosclerosis by more than 60 percent in treated animals versus untreated animals.
4. *Sunshine Heart Inc.*, situated in Eden Prairie, Minnesota, and run by Dave Rosa, is developing medical technology to treat heart failure. Rosa has completed a clinical study that puts it closer to launching the next generation of its product. The start-up's C-Pulse system wraps a pulsating cuff around the aorta, improving blood flow in patients suffering from heart failure.[66]
5. *InterValve* raised $4.7 million to finance clinical trials. The Minnetonka, Minnesota, based company aims to tap into the growing market for so called transcatheter valve technology, which surgeons use to replace heart valves without cracking open a patient's chest.[67]

6. *Ikaria Inc.*, a critical care-focused biotechnology company based in Hampton, New Jersey, is developing a product designed to be administered by injection within 90 minutes of acute myocardial infarction.[68] The injection might limit muscle damage after a heart attack. "CardioMEMS is a medical device that has developed and is commercializing proprietary wireless sensing and communication technology for the human body. The company's technology platform is designed to improve the management of severe chronic cardiovascular diseases such as aneurysms, heart failure, and hypertension. CardioMEMS miniature wireless sensors can be implanted using minimally invasive techniques and transmit cardiac output, blood pressure, and heart rate data, which are critical to the management of patients."[69]
7. "*CircuLite*, in Saddle Brook, New Jersey, is transforming heart failure treatment with the development of minimally invasive devices for long-term partial circulatory support (PCS). CircuLite's Synergy® Pocket Micro-Pump system is designed to expand the treatment options for chronic heart failure patients and offers potentially broad commercial potential."[70]
8. *Osprey Medical*, a company in Eden Prairie, Minnesota, is another interesting cardio company that made a catheter device for cardiology patients who also suffer from kidney disease. "Physicians typically inject dye in a patient to X-ray the heart prior to cardiology procedures, such as placement of a stent. The dye doesn't harm most patients, but can cause significant damage to those who already suffer from kidney disease. Osprey's product, called Cincor, removes dye from the heart so it doesn't reach the kidneys."[71]
9. *Cellular Dynamics*, situated in Madison, Wisconsin, is the first company known to use iPS technology to make mass quantities of high-quality heart cells.[72]
10. *AliveCor*, located in San Francisco, California, has developed an iPhone ECG—a device that measures your heartbeat rhythm—that during a clinical study warned a cardiologist about a participant's impending heart attack.[73] Cardio companies have a tendency to get

acquired before going public, but not always. Cardio companies appear to be forming a new wave with venture capital. Larger cardio companies will most likely seek the route of an IPO.

Another growing area for venture capital is nanotech. Nanotechnology has evolved since 2004 and appears to be forming another wave. Nanotech is basically the science of making things smaller. A number of years ago, no one ever heard of Cleantech or Social Media. With venture capital, growth comes from fast-growing companies typically in a new area. Within various medical groups, investors can select many different health-care stocks from the various medical groups such as managed care, biomed/biotech, systems, medical devices, and others. New areas can evolve. Sometimes technology can even overlap. For instance, The Children's Hospital of Philadelphia spun off its first start-up company called Vascular Magnetics Inc., which has a therapy for treating peripheral artery disease. Vascular Magnetics Inc. combines two venture areas in one: cardio companies and nanotech. Magnetically guided nanoparticles are used to deliver drugs to blood vessels that are diseased and have blockages.[74] Companies such as Vascular Magnetics have growth potential, especially if they can help save lives of those diagnosed with heart disease.

Nanotech is here to stay. Just ask anyone who used one of the first cell phones that looked like a brick. Technology is getting smaller and smaller. Flat screen televisions can be mounted on a wall, as opposed to the ones a few years ago that were three feet deep. Liquid-crystal display (LCD) screens are almost as good as viewing the real thing. Yet, the next-generation televisions might be even better through nanotechnology using structures called quantum dots. Keyboards are now wafer thin. Canatu Ltd., for example, is a leading developer of a new class of versatile carbon nanomaterial-based components.[75] Not only is the keyboard as thin as a piece of paper, but it bends and can be rolled up.

NEW WAVE

The year 2010 was validation that a new venture capital wave was on its way. Venture-backed IPOs saw a run-up in IPOs toward the end of 2010,

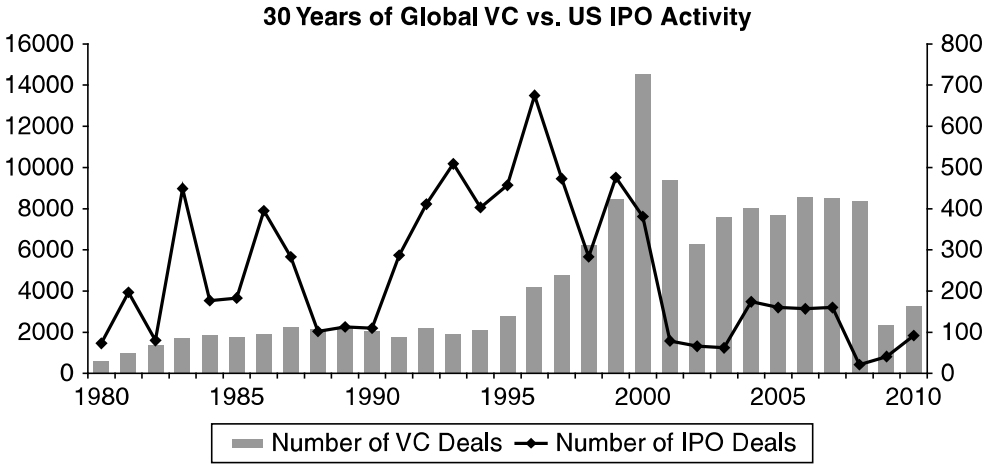

Figure 9.5 Global VC vs. Number of IPOs

Source: Author.

which had not been seen since the tech bubble. Exit activity increased. There were 32 venture capital-backed IPOs in Q4 2010, which was the most since Q3 2000 when there were 89. For the year, there were 72 venture-backed IPOs during 2010, the most since 2007 when there were 86. Some $1.2 billion was invested by venture capital firms in New York in 2010, which overtook Massachusetts in venture-capital funding for Internet and tech start-ups, making it second only to Silicon Valley. Figure 9.5 is a wave chart showing 30 years of global VC vs. US IPO activity.

The year 2011 was no slouch either. "After a May that one tracker says recorded the most U.S. IPOs since November 2007, and with what another tracker calls the biggest IPO backlog in three years, initial public offerings seem in recovery from three weak recession years."[76] M&A also picked up. PricewaterhouseCoopers LLP tallied 1,276 announced transactions with a total value of $454 billion during the first five months of 2011, and 36 percent of the deals struck have been for less than $1 billion, or transactions involving smaller companies.[77] There are both M&A and IPO waves associated with venture capital.

Though varying from quarter to quarter, M&A involving venture-backed companies increased. There were more M&A transactions with venture-backed companies for 2010. The primary exit strategies for venture capital (IPO or M&A) both picked up and appeared to move in tandem, as Figure 9.6 shows.

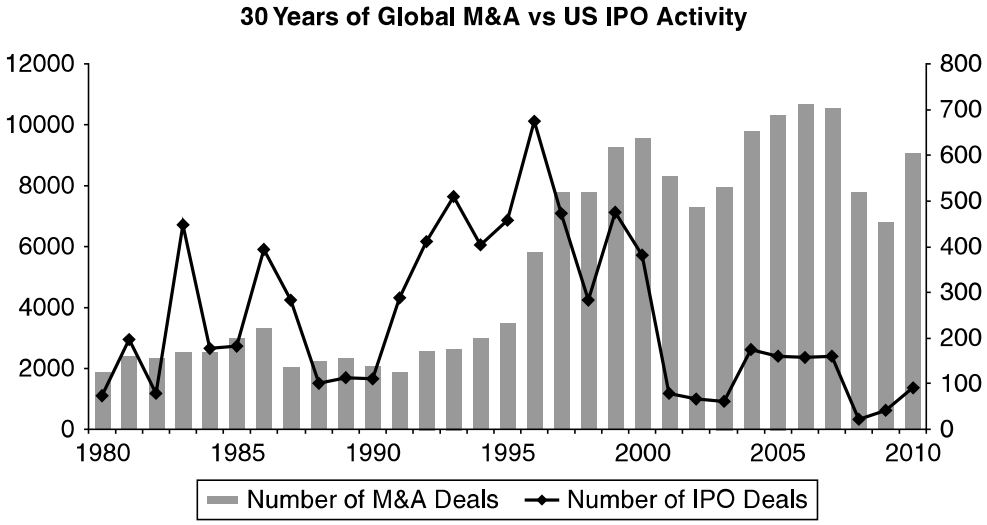

Figure 9.6 M&A Activity vs. Number of IPOs.
Source: Author.

The third exit strategy for venture capital, private exchanges, also flourished and directly became a bona fide exit. Private exchanges might one day become formidable competition with the old exit strategies, IPO and M&A. Owing to the Sarbanes-Oxley Act and other regulatory changes to capital markets over the past decade, the IPO is less attractive for many companies: 72 venture-backed start-ups went public in 2010—up from a mere 12 that made it in 2009 but far below the go-go 1990s before the tech bubble.[78] There are now around four primary private exchanges: SharesPost, SecondMarket, PortalAlliance, and Nyppex. A number of investors are using private exchanges. SharesPost's members include a variety of investors: venture capitalists, angel investors, mutual funds, high net worth individuals, family offices, and employees.[79] The extended period of time it took to go public helped drive interest in private exchanges. "Venture-backed firms, which in the go-go '90s were all too eager to tap public markets, are taking longer and longer to go public these days. That has provided quasi-stock exchanges, such as SharesPost and competitor SecondMarket, with a business in matching sellers looking for an exit with investors desperate to get in on the action."[80] The private exchanges are growing so much that their valuations have increased and some have even received venture capital themselves.

A fourth exit strategy also emerged: bankruptcy. Bankruptcy became a popular exit during the Great Recession. "When bankruptcies began to abate midway through 2009, they were replaced by a far more encouraging sign—the return of the IPO. In H2 2009, PE-backed companies raised US$15.9 billion in IPOs, more than in all of 2008 and H1 2009 combined. PE deals accounted for more than 14% of all IPO dollars raised in 2009. US listings were particularly PE-heavy; 33% of all dollars raised on US exchanges were by sponsored companies."[81] NOLs or "net operating losses" became attractive for those looking for losses to offset gains. NOLs can be used by a healthy company in order to reduce taxes. Sadly, a number of privately based companies were worth more dead than alive. Therefore, bankruptcy became an option.

As the stock market picked up again, venture capital followed. Not only did the number of venture-backed IPOs surge, but billions went into venture capital in 2010. The first quarter of 2011 was also robust: "Thirty-six US venture capital funds raised more than $7 billion in the first quarter of 2011, according to Thomson Reuters and the National Venture Capital Association (NVCA). This level marks a 76 percent increase, by dollar commitments, compared to the first quarter of 2010, which saw 44 funds raise $4.0 billion during the period. The first quarter marks the strongest quarter for US venture capital fundraising since the third quarter of 2008 and the best annual start for fundraising in the US since 2001."[82] Wave Theory, despite all the naysayers and those adamant that venture capital had plunged to the bottom of the sea after the financial shipwreck alternatively known as the Great Recession, is a valid theory. Venture capital bounced back and was forming a new wave.

BUBBLE TROUBLE

Post bubble, it took approximately 10 years (2001–2010) to equal the amount of venture capital raised during the bubble that lasted 5 years (1996–2000). That is, post bubble, it took double the amount of time to raise the same amount of venture capital raised during the bubble. Easy money can be a bad signal (Figure 9.7).

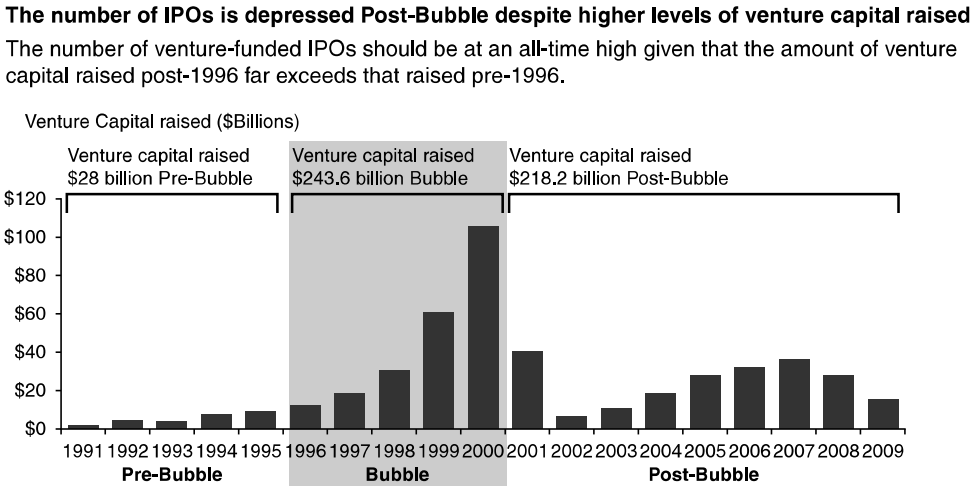

Figure 9.7 Raising Venture Capital Before, During, and After a Bubble.

Source: David Weild and Edward Kim, "Market Structure is Causing the IPO Crisis," GrantThornton, October 2009, p. 6.

It is most interesting to note that venture capital progressed and started a new wave despite unfavorable politics toward venture capital and a languid economic recovery in the United States. Figure 9.8 is a chart of US venture-backed IPOs pre and post the Great Recession.

Figure 9.8 shows the power behind a wave. Just like ocean waves, one cannot stop them; they are inevitable.

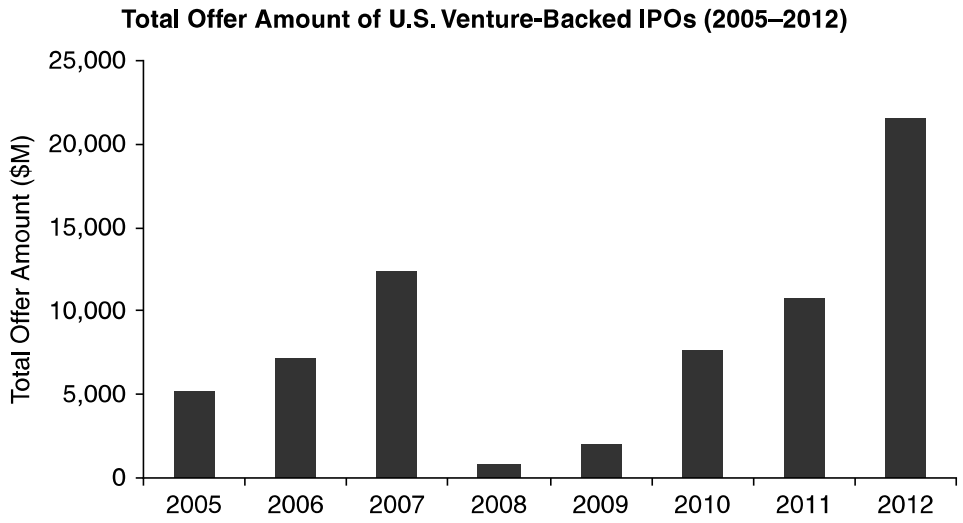

Figure 9.8 Total Offer Amount of Venture-backed IPOs.

Sources: "Global Economic Crisis Weighs Heavily on Venture-Backed Exits in 2008," Thomson Reuters, National Venture Capital Association, January 2, 2009, p. 2; "Venture-Backed Exits Enjoyed Higher Average Values on Lower Total Volumes in 2012," Thomson Reuters, National Venture Capital Association, January 2, 2013, p. 2.

By Q2 2011, venture capital investments rose 19 percent in Q2 2011 to $7.5 billion in 966 deals. Venture capital was back: "Venture capitalists invested $7.5 billion in 966 deals in the second quarter of 2011, according to the MoneyTree™ Report from PricewaterhouseCoopers LLP (PwC) and the National Venture Capital Association (NVCA), based on the data provided by Thomson Reuters. Quarterly venture capital (VC) investment activity increased 19 percent in terms of both dollars and the number of deals compared to the first quarter of 2011 when $6.3 billion was invested in 814 deals."[83] The investment level was not only coming back, it was reaching levels that were the same before the Great Recession. "The quarterly investment level represents the highest total in a single quarter since the second quarter of 2008. The deal count for the first half of 2011 (1,780 deals) is nearly identical to that seen in the first half of 2010 (1,784 deals), while the $13.8 billion invested in the first half of 2011 represented a 12 percent increase over the $12.3 billion invested in the first half of 2010."[84] By the year end, venture capital was the best-performing asset class, proving both that venture capital was not dead and more importantly the merits behind Wave Theory (Figure 9.9). A new wave was formed with venture capital. Dealogic showed venture capital-backed SEC registered IPOs from 1Q 2003–1Q 2012 (Figure 9.10).

VENTURE CAPITAL SECTORS

Some of the sectors supported by venture capital, such as biotech, came back with a vengeance. "Life sciences enterprises were among the big winners in the second quarter. Investment in biotechnology companies jumped 46 percent to $1.24 billion in the second quarter from $847 million in the first quarter."[85] Cleantech, however, showed signs that it might be slowing down. "VC funding of clean technologies—a category consisting of alternative energy, pollution and recycling, power supplies and conservation—showed a mixed pattern in the second quarter. The number of deals increased from 73 in the first quarter to 81 in the second quarter, but the amount of funding dropped by nearly a quarter to $942 million. For the first half of 2011, however, both the number of deals (154) and investment dollars ($2.2 billion) are about the same as the first half of 2010."[86] Yet, venture capital as a whole was increasing. "When the first three quarters of 2011 are combined, nationally VC firms invested $21.2 billion in 2,725 deals, representing 20 percent

The Wave Chart: 20-Year Ranking of Asset Class Returns for Equities, Fixed Income, and Alternative Investments

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Best Return	HFRI Fund Wghtd Composite 21.22%	Int'l Stk 32.94%	CAMBUS Venture Cap 20.07%	CAMBUS Venture Cap 47.81%	NAREIT Composite 35.75%	CAMBUS Venture Cap 54.40%	CAMBUS Venture Cap 35.89%	CAMBUS Venture Cap 319.77%	S&P GSCI 49.74%	NAREIT Composite 15.50%	S&P GSCI 32.07%	Int'l Stk 39.17%	NAREIT Composite 30.41%	CAMBUS Private Eqty 30.94%	NAREIT Composite 34.02%	S&P GSCI 32.67%	BARC CTA Index 14.09%	Int'l Stk 32.46%	NAREIT Composite 27.56%	CAMBUS Venture Cap 13.81%
	CAMBUS Private Eqty 16.38%	HFRI Fund Wghtd Composite 30.88%	CAMBUS Private Eqty 16.37%	S&P 500 Composite 37.20%	S&P GSCI 33.92%	CAMBUS Private Eqty 39.63%	S&P 500 Composite 28.34%	CAMBUS Private Eqty 50.51%	NAREIT Composite 25.89%	BarCap AggregateBnd 8.44%	BARC CTA Index 12.36%	NAREIT Composite 38.47%	CAMBUS Private Eqty 24.20%	S&P GSCI 25.55%	CAMBUS Private Eqty 29.73%	Int'l Stk 11.63%	BarCap AggregateBnd 5.24%	NAREIT Composite 27.80%	CAMBUS Private Eqty 21.45%	CAMBUS Private Eqty 10.90%
	NAREIT Composite 12.18%	CAMBUS Private Eqty 21.89%	Int'l Stk 8.06%	CAMBUS Private Eqty 27.48%	CAMBUS Venture Cap 30.18%	S&P 500 Composite 31.83%	Int'l Stk 20.33%	Average 44.55%	BarCap Aggregate Bond 11.63%	HFRI Fund Wghtd Composite 4.62%	BarCap Aggregate Bond 10.26%	S&P 500 Composite 28.36%	Int'l Stk 20.70%	CAMBUS Venture Cap 14.71%	Int'l Stk 26.86%	CAMBUS Venture Cap 11.09%	Currency 3.50%	S&P 500 Composite 25.92%	CAMBUS Venture Cap 18.51%	NAREIT Composite 7.28%
	CAMBUS Venture Cap 10.61%	CAMBUS Venture Cap 21.87%	S&P GSCI 5.29%	HFRI Fund Wghtd Composite 21.50%	S&P 500 Composite 23.82%	NAREIT Composite 18.86%	CAMBUS Private Eqty 11.70%	S&P GSCI 40.92%	BARC CTA Index 7.86%	Cash 4.09%	Currency 6.29%	CAMBUS Private Eqty 26.96%	S&P GSCI 17.28%	Int'l Stk 14.02%	S&P 500 Composite 15.61%	CAMBUS Private Eqty 10.83%	Cash 1.80%	CAMBUS Private Eqty 21.74%	S&P 500 Composite 15.06%	BarCap Aggregate Bond 4.62%
	Currency 10.27%	NAREIT Composite 18.55%	Average 4.61%	S& P GSCI 20.33%	CAMBUS Private Eqty 23.20%	Average 16.97%	BarCap AggregateBnd 8.69%	HFRI Fund Wghtd Composite 31.29%	Cash 5.96%	Currency 2.71%	NAREIT Composite 5.22%	S&P GSCI 20.72%	Average 12.24%	Average 10.32%	CAMBUS Venture Cap 14.99%	HFRI Fund Wghtd Composite 9.96%	CAMBUS Venture Cap –17.36%	HFRI Fund Wghtd Composite 19.98%	Average 11.55%	Currency 2.33%
	S&P 500 Composite 7.49%	Average 13.06%	Cash 4.24%	Average 18.75%	HFRI Fund Wghtd Composite 21.10%	HFRI Fund Wghtd Composite 16.79%	BARC CTA Index 7.01%	Int'l Stk 27.30%	Average 5.49%	BARC CTA Index 0.84%	Cash 1.70%	HFRI Fund Wghtd Composite 19.55%	CAMBUS Venture Cap 11.06%	HFRI Fund Wghtd Composite 9.30%	HFRI Fund Wghtd Composite 12.89%	Average 7.80%	Average –18.12%	Average 14.05%	HFRI Fund Wghtd Composite 10.49%	S&P 500 Composite 2.11%
	BarCap Aggregate Bond 7.40%	BARC CTA Index 10.37%	HFRI Fund Wghtd Composite 4.10%	BarCap Aggregate Bond 18.47%	Average 18.09%	Currency 11.35%	Average 6.43%	S&P 500 Composite 20.89%	HFRI Fund Wghtd Composite 4.98%	Average –6.33%	Average –0.76%	Average 18.21%	S&P 500 Composite 10.74%	NAREIT Composite 8.29%	Average 11.96%	BARC CTA Index 7.64%	HFRI Fund Wghtd Composite –19.02%	S&P GSCI 13.48%	S&P GSCI 9.02%	S&P GSCI 2.07%
	Average 7.35%	S&P 500 Composite 9.97%	S&P 500 Composite 1.33%	NAREIT Composite 18.31%	BARC CTA Index 9.12%	BARC CTA Index 10.89%	Currency 5.71%	Cash 4.74%	Currency 4.45%	CAMBUS Private Eqty –6.74%	HFRI Fund Wghtd Composite –1.45%	Currency 11.08%	HFRI Fund Wghtd Composite 9.03%	S&P 500 Composite 4.83%	Cash 4.76%	BarCap AggregateBnd 6.97%	CAMBUS Private Eqty –23.63%	CAMBUS Venture Cap 6.28%	Int'l Stk 8.21%	Average 2.02%
	S&P GSCI 4.42%	BarCap AggregateBnd 9.75%	NAREIT Composite 0.81%	Int'l Stk 11.55%	Currency 6.69%	BarCap AggregateBnd 9.65%	Cash 5.06%	Currency 3.12%	S&P 500 Composite –9.03%	S&P 500 Composite –11.85%	CAMBUS Private Eqty –7.59%	BARC CTA Index 8.69%	BarCap AggregateBnd 4.34%	Cash 3.00%	BarCap Aggregate Bond 4.33%	S&P 500 Composite 5.48%	S&P 500 Composite –36.58%	BarCap Aggregate Bond 5.93%	BARC CTA Index 7.05%	Cash 0.08%
	Cash 3.62%	Cash 3.09%	BARC CTA Index –0.65%	Currency 11.49%	Int'l Stk 6.36%	Cash 5.25%	HFRI Fund Wghtd Composite 2.62%	BarCap AggregateBnd –0.82%	Int'l Stk –13.96%	Int'l Stk –21.21%	Int'l Stk –15.66%	BarCap Aggregate Bnd 4.10%	BARC CTA Index 3.30%	BarCap Aggregate Bond 2.43%	BARC CTA Index 3.54%	Cash 4.74%	NAREIT Composite –37.84%	Currency 0.91%	BarCap Aggregate Bnd 6.54%	BARC CTA Index –3.09%
	BARC CTA Index –0.91%	Currency –3.33%	BarCap AggregateBnd –2.92%	Cash 5.75%	Cash 5.25%	Int'l Stk 2.06%	NAREIT Composite –18.82%	BARC CTA Index –1.19%	CAMBUS Private Eqty –14.24%	S&P GSCI –31.93%	S&P 500 Composite –21.97%	CAMBUS Venture Cap 2.18%	Currency 2.36%	BARC CTA Index 1.71%	Currency –0.12%	Currency 2.59%	Int'l Stk –43.06%	Cash 0.16%	Currency 3.05%	HFRI Fund Wghtd Composite –5.56%
Worst Return	Int'l Stk –11.85%	S&P GSCI –12.33%	Currency 5.96%	BARC CTA Index –13.64%	BarCap Aggregate Bond 3.63%	S&P GSCI –14.07%	S&P GSCI –35.75%	NAREIT Composite –6.48%	CAMB US Venture Cap –17.75%	CAMB US Venture Cap –34.05%	CAMB US Venture Cap –29.63%	Cash 1.07%	Cash 1.24%	Currency –1.21%	S&P GSCI –15.09%	NAREIT Composite –17.83%	S&P GSCI –46.49%	BARC CTA Index –0.10%	Cash 0.13%	Int'l Stk –11.73%

Figure 9.9 The Wave Chart: 20-Year Ranking of Asset Class Returns for Equities, Fixed Income, and Alternative Investments.

Source: Author.

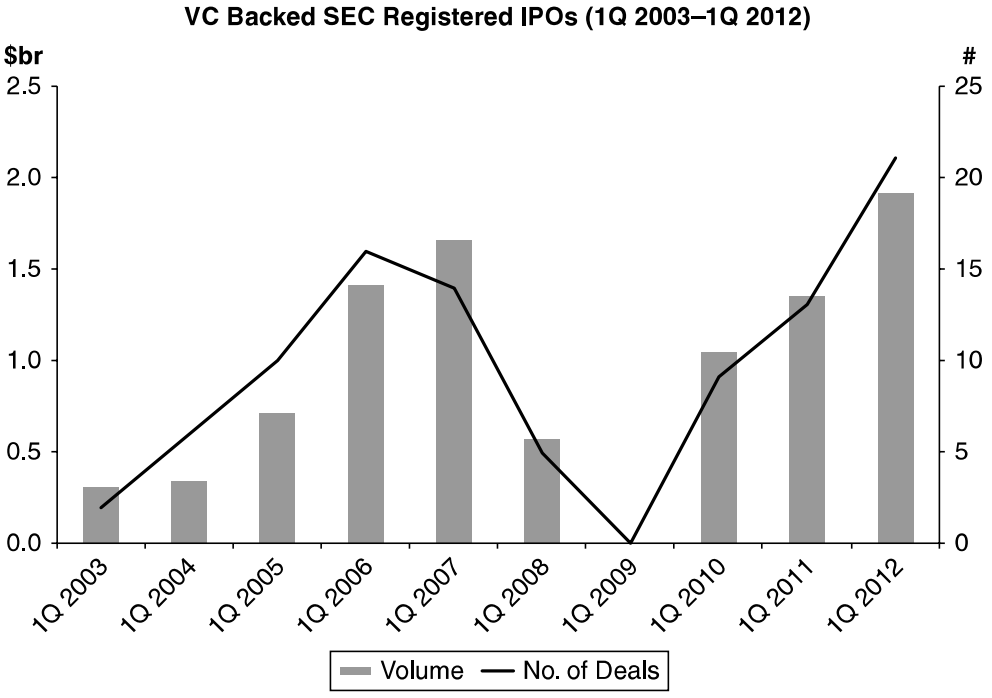

Figure 9.10 VC-backed SEC registered IPOs.

Source: "2012 VC-Backed SEC Registered IPO Volume Sees Highest First Quarter since 2000," Dealogic, April 3, 2012, p. 1.

more money and 3 percent more deals than the first three quarters of 2010."[87] "Nationally, according to the report, the number of deals also rose, from 1,005 in Q3 last year to 1,015 in this year's third quarter. Dollar volume also climbed nationally from $7.17 billion to $7.88 billion."[88] Besides biotech deals, software was the leader for 2011. Figure 9.11 lists the top industries by deals funded in 2011.

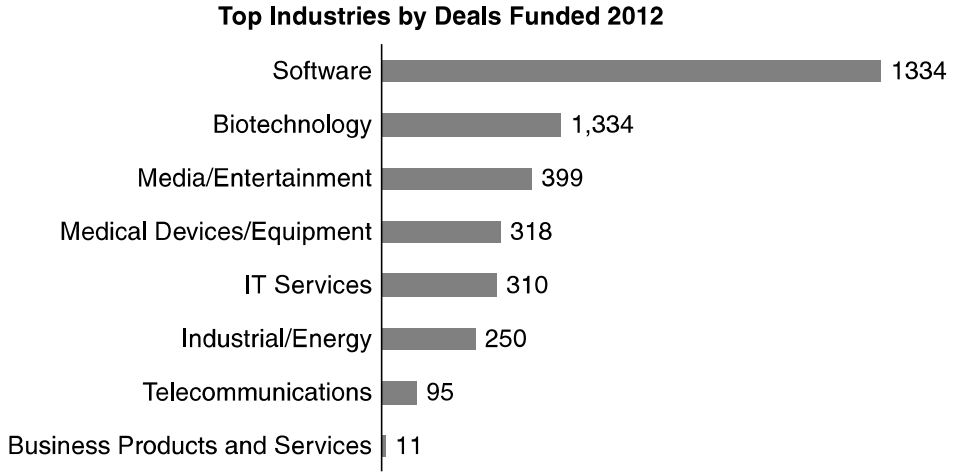

Figure 9.11 Deals Funded in Top Industries in 2012.

Source: PricewaterhouseCoopers/National Venture Capital Association MoneyTree™ Report, Data: Thomson Reuters.

Interestingly enough, the Internet, which was supposedly dead and never going to come back after the tech bubble burst in 2000, was the new all star. When the tech bubble burst and Nasdaq crashed, investors ran from technology. Internet companies went bankrupt daily. News reports claimed it was highly doubtful ecommerce would ever amount to anything. Anyone who bought shares or invested in the market was too embarrassed to admit it. Strangely, venture capital markets and Internet IPOs came back in vogue after the Great Recession, more than a decade after the Tech Wreck in 2000–2002. "Investments in Internet-specific companies also rose considerably to the highest quarterly level since 2001."[89] Internet led by year end 2012 (Figure 9.12).

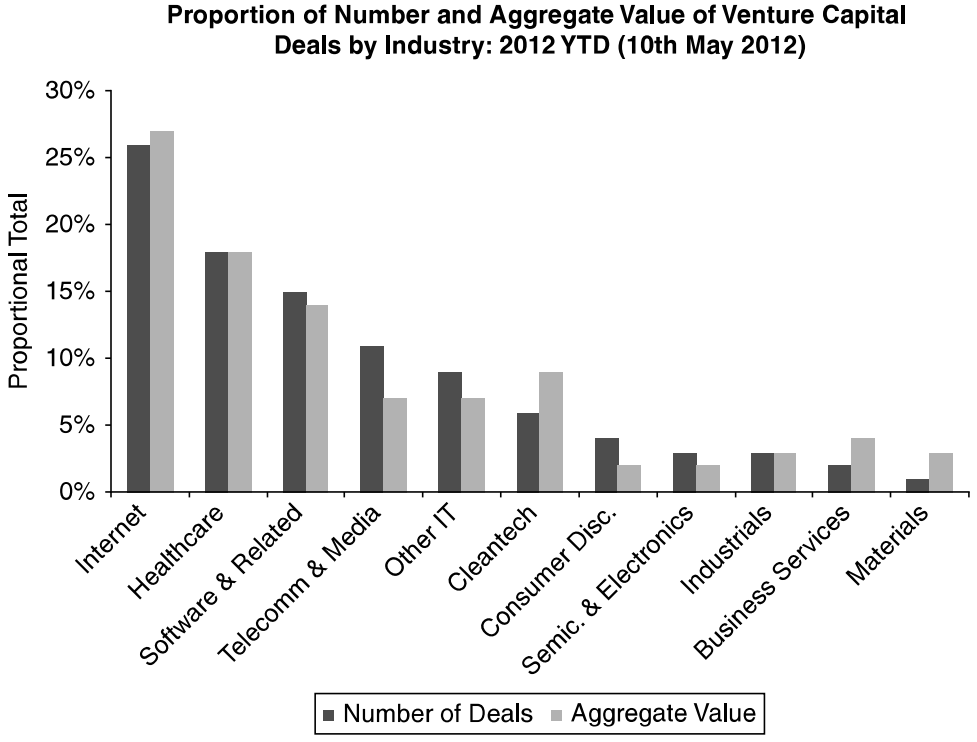

Figure 9.12 Number and Value of VC by Industries.

Source: "Venture Capital Deals by Industry, Stage, and Size," Preqin Special Report: Venture Capital, Preqin Venture Deals Analyst Online Services, May 2012.

VALUATION AND VENTURE CAPITAL

Many Internet companies such as Tumblr had little to no revenue. "Tumblr has scant revenues and a nascent business model, but the fast-growing blogging service said it raised $85 million in venture capital. The investment values the company at $800 million, said people familiar with the

matter."[90] Yet the business model and the founder attracted interest from VCs. The company was started by a young entrepreneur who saw a need to help the arcane world of blogging. "Tumblr was founded in 2007 by Mr. Karp, a high-school dropout who was then 20 years old and who launched the site to simplify the blogging process. The name stems from tumblelog, which is a short-form mixed-media blog."[91] Blogging never existed during the tech bubble; it was new. The vast majority of the largest venture capital deals done in 2011 were Internet related and the top three deals were all Internet companies (Table 9.4).

Young entrepreneurs that helped create and develop the Internet, such as Marc Andreessen, came back and helped the next wave of Internet companies involved with social media: "After moving to Silicon Valley, he started Netscape Communications when he was 22 years old. Its stock market flotation in 1995 marked the beginning of the dotcom boom and made Mr. Andreessen a celebrity in the business world…Mr. Andreessen's own experience as practicing entrepreneur makes him ideally placed to counsel the bosses of startups that his firm has funded."[92] A number of private companies mentioned in *Wave Theory for Alternative Investments* went public since its release. For example a private VC-backed company situated in San Francisco, Twitter, was featured in *Wave Theory for Alternative Investments*. The company lets people broadcast messages of up to 140 characters known as "tweets." Mid-year 2011, Twitter raised $800 million

Table 9.4 The Top 10 Largest Venture Capital Rounds of 2011

Rank	Company	Industry	Amount
1	Zynga, Inc.	Online games	$490,000,062
2	Twitter Inc.	Social media	$400,000,000
3	LivingSocial, Inc.	Online coupon retail	$400,000,000
4	Reata Pharmaceuticals, Inc.	Pharmaceuticals	$300,000,000
5	LightSquared	Wireless communications	$265,000,000
6	Dropbox	Communications, networking, & storage technology	$250,000,000
7	Hibernia Atlantic, Inc.	Long-distance carriers	$250,000,000
8	BrightSource Energy, Inc.	Solar systems	$201,000,000
9	Adknowledge	Online advertising	$200,000,000
9	Plastic Logic Ltd.	Semiconductor, circuits, & other electronic components manufacturing	$200,000,000
9	True Car, Inc.	Online market places	$200,000,000
9	InMobl	Mobile advertising	$200,000,000

Source: "The Top 10 Largest Venture Capital Rounds of 2011," PrivCo, January 10, 2012.

in an investment round that valued the micro-blogging service at $8.4 billion after the deal.[93] Twitter is no longer a start-up since its founding in 2006 and now stands at 100 million users strong, and they tweet 230 million times a day.[94] Unlike the 1990s where hundreds of small Internet companies were going public, there were fewer IPO candidates this time around. Most were involving the social media wave. A major difference is that the next-generation Internet companies are much larger and have far more revenue than the ones during the tech bubble. For example, Twitter is growing rapidly. It is a technological marvel:

> Twitter, on the other hand, is intended to handle a huge daily volume of information, with scalability, polyglot persistence, and restricted search and archiving capabilities. For tweets, analytics, and other data, Twitter uses multiple data storage and retrieval approaches, including Cassandra, Hadoop, Hive, Pig, Vertica, and MySQL. As of December, Twitter was storing 250 million tweets per day with a data store built using MySQL.[95]

Twitter's growth continues amongst the other social media companies as it becomes more readily used around the globe: "Facebook dominates the social networking landscape in terms of overall users and time spent per user. But other firms, such as Twitter, LinkedIn, and Tumblr, are growing faster."[96] Twitter even played a role during the 2012 presidential debates: there were over ten million messages over a time period of one and a half hours.

Buying shares of an IPO is no easy task. Investors in the Facebook IPO lost money soon after the IPO. Twitter investors, on the other hand, did well. Twitter learned from the Facebook debacle. Management hired Goldman Sachs to be the lead underwriter for its IPO instead of Morgan Stanley, which took Facebook public. Shares of the Twitter IPO were priced at $26.00 per share, which ultimately leaped more than 70 percent the first day. By contrast, the Facebook IPO dropped in half during its first couple of months of trading. It took nearly one and a half years for investors to follow the stock back up again from around a low of $18.00 to the IPO price of $38.00. Management of Twitter and Goldman Sachs appeared to do the opposite of whatever was done for the Facebook IPO; they were determined

to not make the same mistakes. For example, preferential disclosures with institutional buyers were avoided. Twitter was listed on the NYSE instead of NASDAQ. Twitter's management wanted to avoid any technological issues that occurred with Facebook. Early investors in Twitter were not eager to unload shares. There were no hedge funds planning on cashing out billions of dollars as retail investors bought shares. Venture firms that backed Twitter, such as Benchmark Capital Partners, Spark Capital, and Union Square Ventures, were not inclined to sell massive amounts of stock on the IPO. The filing made no mention of VCs selling. Founders and other early investors were not selling vast quantities of stock. Proceeds from the Twitter IPO were primarily for operating expenses and making acquisitions that were strategic to the company. The bankers for Twitter also did not boost the number of shares for sale of Twitter at the last minute before the offering while simultaneously raising the price of the IPO too far above the high end of the range. The Twitter IPO was priced on November 6, 2013, valuing the company more than $10 billion. At the time, there were 230,000,000 users. Facebook has a market cap of around $123 billion of 12 times that of Twitter. The valuation at the time of the Twitter IPO was considered reasonable by investors.

Valuation is still a concern amongst many of the next-generation Internet companies involving social media. "Zynga's new filing, an amended S-1 document for its initial public offering, also disclosed how the company has been valued in the past, prior to the recent market tumult. In March, Zynga said a 'third-party valuation report' indicated Zynga's worth was $11.5 billion, according to its filing. Just one month earlier, another third-party valuation report indicated Zynga's value was less than half that, at $4.98 billion."[97] The current wave of social media companies looks promising but valuations appear to be all over the place.

A popular company that started with an app for the iPhone called Angry Birds, developed a viable business model and then expanded into other areas. In addition to games, Angry Birds offers books and toys. The Internet companies that were popular in 2010–2011 were very different from those in the dot-com era. "Unlike dot-com companies a decade ago, however, the new crop of Web companies has attracted a large base of users and is generating revenue through online advertising and other means.

Their valuations have climbed rapidly lately and also triggered share trading on private exchanges."[98]

Another venture-backed company that set records for high valuation was WhatsApp. After Facebook's ascent almost one and a half years after its troubled IPO, it paid $19 billion to acquire this messaging startup. The deal was for both cash and $3 billion in restricted stock. WhatsApp's purchase price ranked the private company as the largest-ever for a venture-backed company. "The deal marks the coming-of-age of messaging apps, which let people send text messages and share photos and other stuff without incurring charges from telecoms firms."[98] As Apple, Facebook, Amazon, Microsoft, Priceline, Google, and others compete with one another and wander into each other's backyards, attractive new start-ups will likely get gobbled up and some might even get exorbitant offers like WhatsApp. These large publicly traded companies are sitting on record amounts of cash and have become quite acquisitive and entrepreneurs know it. For instance, the founder of Snapchat turned down a $3 billion offer from Facebook's Zuckerberg.

SURFING ALONE

While a number of the private companies mentioned in *Wave Theory for Alternative Investments* ended up being home runs (three out of five of the private companies that were featured did well), Energy Recovery has compelling technology but struggled. Energy Recovery Inc. is involved with cleantech; it is a leader in the design and development of energy recovery devices for desalination. Desalination may provide an inexpensive way to prepare seawater for consumption. The market for a technique to remove salt from ocean water is large given the size of the ocean. The Earth consists primarily of water: Earth's oceans contain about 324 million cubic miles (1.36 billion cubic kilometers) of sea water. Dissolved in this are some 53 million billion tons (48 million billion metric tons) of salts, gases, and other substances.[100] The global desalination market struggled during the recession. As with all venture capital investing, investing in a handful of private companies is likely to bring a mixed bag of results. The objective of course is to have more winners than losers, which is not an easy feat by any stretch of the imagination. A tremendous amount of research at due diligence is required for investing in private companies.

Sometimes a new area takes time to develop. Venture capital seldom turns a profit overnight; it takes time to develop an idea or product. A company in a new area is also helped if it is not the only one. In other words, it helps the process if others join the bandwagon and your company is not the sole company attempting to penetrate a space. Owning the Lone Ranger can be risky. Several companies competing in an area is preferable, especially if there are technology hurdles. Drinking water from the sea, for example, sounds great but it is a difficult process. "To make seawater fit for human consumption its salt content of approximately 3–5% must be cut to 0.5% or less. Existing desalination plants do this one of two ways. Some employ distillation, which needs about 10 kilowatt-hours (kwh) of energy per cubic metre of seawater processed. Brine is heated, and the resulting water vapor is condensed. Other plants employ reverse osmosis. This uses molecular sieves that pass water molecules."[101]

As with any technology, there is competition with desalination. The technology is evolving and there are several new players involved, not just one. For example, Siemens came out with a new system and demonstrated that it achieves 1.8 kWh/m^3 per cubic meter, which researchers might be able to lower further to 1.5 kWh/m^3, with a few minor improvements. Conventional consumption is typically 3.4–4.8 kWh/m^3. The Siemens system uses a process called electrodialysis. One day, it will be feasible to drink ocean water without salt. This is the essence of venture capital—making the impossible possible. Solving a difficult problem or an idea that appears wishful thinking might be possible. Venture capital helps render dreams reality; the borderline impossible or unlikely can become a reality. "As salt-filtering technologies replace boiling and reduce the price of desalinated water, governments in Australia, China, Israel, the United Arab Emirates and the U.S. are tapping the oceans."[102] In 2011, the global capacity of desalination plants reached 66.5 million cubic meters per day, with 15,988 plants in operation led by programs in Saudi Arabia, the United Arab Emirates, and Spain.[103]

VENTURE CAPITAL IS GLOBAL

While the United States struggled with IPOs after the Great Recession, the rest of the world was more proactive and favorable toward IPOs. Asia saw

the value in both venture capital and IPOs. "As has been the case since 2009, Asia continued to dominate the global market, accounting for 53% of the total deals priced."[104]

China and India are both waking up to the world of alternative investments. Regarding venture capital, both countries are shifting into higher gears: "China and India have in recent times asserted themselves as key venture capital hubs. In 2011, there were 203 venture capital deals in China, an increase of 6% in comparison to the previous year."[105] However, they are also moving not just into venture capital and IPOs but real estate, commodities, hedge funds, LBO funds, and many others. Both countries are growing very rapidly. The gross domestic product is expected to grow 9 percent in India and 8.9 percent in China in 2011, according to an April 2011 poll by the *Economist* magazine, and last year, India won by a nose, registering GDP of 10.4 percent to China's 10.3 percent.[106] Interest in alternative investments will likely grow in both countries.

India is probably in second gear right now but in the future it is more likely the country switches to a higher gear. In fact, certain industries have completely turned around. India's economy is one of the world's most dynamic and some industries, such as media and aviation, are unrecognizable from ten years ago.[107] Population has a lot to do with India's progress. India's large population is both a blessing and a curse. For example, India's former capital, Kolkata (Calcutta) used to be its pride and joy. The former growth engine, however, lost its luster. Images of the plague, starvation, and extreme poverty come to mind at the mere mention of the name. But Kolkata is making a comeback and has potential to be turned around. Not only does India have a large population, which can be advantageous by having a huge workforce, but they are nurturing different types of private companies from small to large besides technology.

The number of billionaires in India has also increased during the past few years. In the past, India has had virtually no billionaires but the pace has picked up rapidly in the most recent years. IPOs can generate enormous amounts of wealth for entrepreneurs. Figure 9.13 is a chart of IPOs listed on various stock exchanges from around the globe as well as total value.

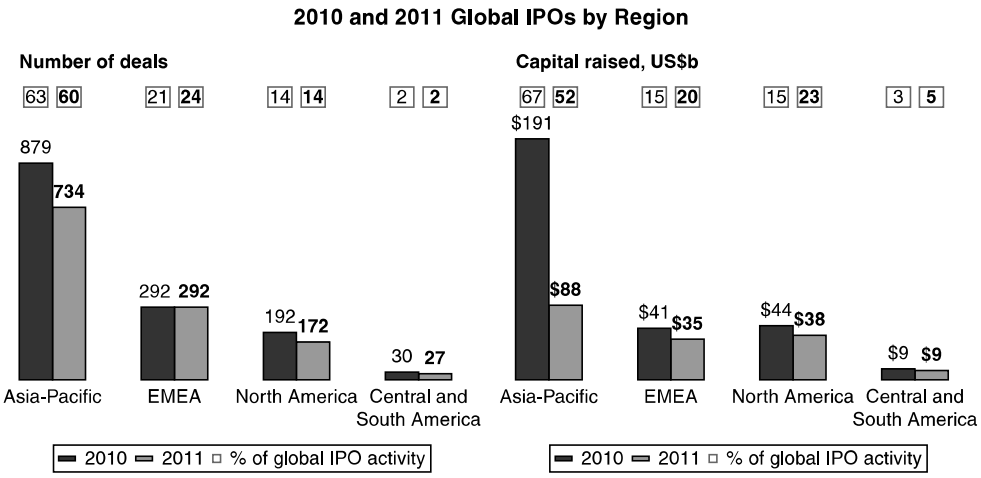

Figure 9.13 Global IPOs by Region.

Source: "Global IPO Trends 2012," E&Y, 2012, p. 5.

Dealogic, EY. 2012 Global IPO Update, EY, December 2012, pp. 28–29.

China has also changed and is now considered a superpower. Besides owning a large amount of US debt, China has been churning out public companies left, right, and sideways. Some of the IPOs are quite large. One Chinese brokerage, Citic Securities Co., listed a $1.7 billion IPO in October of 2011. Asian stock exchanges have grown. Mergers will invariably make some of the exchanges much larger. The RTS (Russian Trading System) and MICEX (Moscow Interbank Currency Exchange) exchanges merged in 2011, with the hope of becoming a leading global exchange.

ONE CAN SURF ANYWHERE (NO ONE HAS A MONOPOLY ON GOOD IDEAS)

The United States is in the lead right now but that could change some day. "The result is some 3,800 fewer companies trade on the U.S. exchanges today than in 1997, according to consulting firm Capital Markets Advisory Partners."[108] "Abroad, there are nearly eight times as many listings as in the U.S., with Hong Kong, China, and India among the leading venues."[109] Despite the doom and gloom that affected venture capital, the industry was similar to a Phoenix, rising from the ashes. According to the National Venture Capital Association, venture capital fundraising rose to $18.16 billion in 2011, up 31 percent from $13.77 billion in 2010, with the same number of funds raised in 2011 as the year before—169.[110]

The United States is known for its entrepreneurs and this cultural DNA is hard to break. "Penalizing the risk-takers by trying to 'level the playing field' through excessive regulation, taxation or antitrust threats will simply sap the entrepreneurial spirit from the marketplace, limit technological innovation and diminish the possibility of progress over the long haul."[111] There is a value to human capital. "Unleash the energies of entrepreneurial people and they will change the world. What we face today is not a space race but a race toward what can be a new American Century."[112] Venture capital will prevail again and new technologies will emerge. Andreessen Horowitz, a VC firm based in San Francisco, believes personal technology is changing. "They believe that networking and storage technology is about to go through the same kind of fundamental transition that the server business experienced in the late 1990s, when expensive, proprietary servers were replaced by much cheaper ones that used new technology."[113] A number of noteworthy private companies attracted funds during the difficult but rebounding venture capital market. The United States continues to be dominant with venture capital despite the rocky road from the Great Recession. However, it is in jeopardy of falling in the ranks similar to how it has fallen in education.

U.S. corporations have been hoarding cash, hesitant about investing in growth. Many reports of large amount of cash are being issued. As companies became leaner and meaner in 2011, earnings improved. "Better earnings—and record profits in some recent quarters—have helped fill the coffers of nonfinancial companies with what the Federal Reserve said was $2.05 trillion in cash and other liquid assets as of the end of June, the most since 1963."[114] A number of large publicly traded technology companies started making acquisitions. While a fair amount went to tech, life sciences companies also began showing promise. Interesting energy companies also surfaced. Table 9.5 lists the noteworthy venture capital deals that were able to prosper and raise funds.

Attractive early companies will always get seeded and new groups have evolved that help with this process. "In this torpid economy, it can be hard to find seed money for a new product, company, or artistic venture. Many are turning to Kickstarter, the two-year-old fundraising site that currently passed the million-donor mark. Entrepreneurs and creators

Table 9.5 Noteworthy Venture Capital of 2011–2012

Company	Amount	Date	Company	Amount	Date
6 Waves Lolapps	$35,000,000	Aug-11	Living Social	$176,000,000	Dec-11
Actifio	$33,500,000	Dec-11	Opera Solutions	$84,000,000	Sep-11
Agilyx	$22,000,000	Mar-11	Qwiki	$8,000,000	Jan-11
AppDynamics	$20,000,000	Jan-12	Smule	$12,000,002	Oct-11
Cram Worldwide	$2,000,000	Oct-11	Sonian	$9,000,000	Jan-11
DropBox	$250,000,000	Oct-11	Spotify	$100,000,000	Feb-11
Fisker Automotive	$218,433,421	Jan-12	Survey Monkey	$65,000,000	Jan-12
Four Square	$50,000,000	Jun-11	Tumblr	$85,000,000	Sep-11
General Fusion	$19,500,000	May-11	Vice Media	$50,000,000	Apr-11
Gilt	$137,999,857	May-11	Workday	$85,000,000	Oct-11

Source: Author.

used Kickstarter to raise $8.8 million in September, and those 50 projects exceeded their goals by the most."[115] Early stage incubators and "accelerators" have flourished. Some incubators have helped hundreds of early stage companies.

Likewise, quite a few companies set up venture arms including BMW. "BMW also created a $100 million venture capital fund, BMW i Ventures, to invest in start-ups like MyCityWay and ParkatmyHouse, which offers mobility services for crowded cities."[116] Colleges and universities became more active with venture capital. For example, the University of Minnesota also set up venture funds. "The University of Minnesota plans to launch two venture capital funds next year, one of which will invest in startup companies that license university technology. The fund backing university startups will total $20 million in size and will make seed-stage investments over a 10-year period. A separate $50 million fund will invest in startups nationwide."[117] Quite a few schools set up vehicles to invest in companies. It should be noted investing in initial public offerings is not identical to investing in venture capital. However, many venture-backed companies go public and an investor can obtain attractive returns (Figure 9.14).

SURFING IS COMPETITIVE AND SO IS VENTURE CAPITAL

Receiving a decent allocation is another stumbling block for IPO shares because basically who would not want shares of a hot deal? Everyone does. Unless one gives millions of dollars to a bank to invest as well as generating

Mean First-day Returns and Money Left on the Table, 1980–2012

The sample is IPOs with an offer price of at least $5.00, excluding ADRs, unit offers, closed-end funds, REITs, partnerships, small best efforts offers, banks and S&Ls, and stocks not listed on CRSP (CRSP includes Amex, NYSE, and NASDAQ stocks). Proceeds excludes overallotment options, but includes the global offering size. The amount of money left on the table is defined as the offer price to closing market price on the first-day of trading, multiplied by the number of shares offered (excluding overallotment options) on a global basis.

		Mean First-day Return		Aggregate	
Year	Number of IPOs	Equal-weighted	Proceeds-weighted	Amount Left on the Table	Aggregate Proceeds
1980	73	13.9%	19.7%	$0.18 billion	$0.92 billion
1981	197	6.2%	6.1%	$0.14 billion	$2.37 billion
1982	80	10.9%	13.2%	$0.13 billion	$1.01 billion
1983	449	10.0%	9.5%	$0.84 billion	$8.75 billion
1984	177	3.2%	1.9%	$0.04 billion	$2.28 billion
1985	183	6.3%	5.2%	$0.22 billion	$4.36 billion
1986	395	6.1%	5.0%	$0.68 billion	$13.69 billion
1987	283	5.7%	5.7%	$0.66 billion	$11.52 billion
1988	102	5.7%	3.5%	$0.13 billion	$3.72 billion
1989	113	8.2%	4.7%	$0.24 billion	$5.20 billion
1990	110	10.8%	8.1%	$0.34 billion	$4.27 billion
1991	287	11.9%	9.7%	$1.50 billion	$15.36 billion
1992	411	10.3%	8.1%	$1.82 billion	$22.58 billion
1993	509	12.7%	11.3%	$3.52 billion	$31.28 billion
1994	403	9.8%	8.4%	$1.46 billion	$17.30 billion
1995	457	21.2%	15.3%	$4.41 billion	$28.88 billion
1996	675	17.2%	16.1%	$6.80 billion	$42.25 billion
1997	473	14.1%	14.4%	$4.54 billion	$31.58 billion
1998	283	21.7%	15.6%	$5.25 billion	$33.66 billion
1999	476	71.0%	57.0%	$36.94 billion	$64.77 billion
2000	381	56.4%	45.8%	$29.69 billion	$64.86 billion
2001	79	14.2%	8.7%	$2.97 billion	$34.24 billion
2002	66	9.1%	5.1%	$1.13 billion	$22.03 billion
2003	62	12.1%	10.5%	$1.00 billion	$9.53 billion
2004	174	12.3%	12.4%	$3.87 billion	$31.31 billion
2005	160	10.2%	9.3%	$2.64 billion	$28.27 billion
2006	157	12.1%	13.0%	$3.95 billion	$30.48 billion
2007	160	13.9%	13.9%	$4.95 billion	$35.69 billion
2008	21	6.4%	24.8%	$5.65 billion	$22.76 billion
2009	41	9.8%	11.1%	$1.46 billion	$13.17 billion
2010	92	9.2%	6.1%	$1.83 billion	$29.85 billion
2011	81	13.3%	12.0%	$3.23 billion	$26.97 billion
2012	94	17.7%	8.9%	$2.78 billion	$31.12 billion
1980-1989	2,052	7.2%	6.1%	$3.28 billion	$53.85 billion
1990-1998	3,608	14.8%	13.0%	$29.64 billion	$227.17 billion
1999-2000	857	64.5%	51.4%	$66.63 billion	$129.62 billion
2001-2012	1,187	12.2%	11.2%	$35.45 billion	$315.42 billion
1980-2012	**7,704**	**17.9%**	**18.6%**	**$135.01 billion**	**$726.06 billion**

Figure 9.14 Mean First-day Retunrs and Money Left on the Table, 1980–2012.

Source: "Initial Public Offerings: Tables Updated Through 2012," Prof. Jay Ritter, p. 2, January 4, 2013.

a lot of commissions, an investor will not get a lot of shares if any. Ultra high-net worth clients get IPOs, not regular retail clients. Allocations are beyond the control of a financial advisor. Good clients can receive decent allocations but it is dependent on a lot of different factors such as the underwriter. Is the firm you bank with also an underwriter of IPOs? Are they the

Table 9.6 IPOs with At Least $50 Million in LTM Sales (2005 purchasing power) from 1980 to 2009 Categorized by Private Equity (Buyout Fund) Backing

Buyout-backed or not	Number of IPOs	Average first-day return	Average 3-year buy-and-hold return		
			IPOs	Market-adjusted	Style-adjusted
Buyout-backed	814	8.50%	36.10%	7.10%	2.80%
Non-buyout-backed	2,636	13.00%	40.30%	−4.80%	3.90%
All	**3,450**	**12.00%**	**39.30%**	**−2.00%**	**3.60%**

Source: "Initial Public Offerings: Tables Updated Through 2010," Prof. Jay Ritter, p. 25, June 1, 2011.

Table 9.7 IPOs from 1980 to 2009 Categorized by Venture Capital Backing

VC-backed or not	Number of IPOs	Average first-day return	Average 3-year buy-and-hold return		
			IPOs	Market-adjusted	Style-adjusted
VC-backed	2,577	28.10%	23.20%	−12.90%	0.02%
Non-VC-Backed	4,777	12.70%	19.90%	0	−0.12%
Non-VC and non-buyout	3,858	13.60%	16.7	−30.00%	−0.15%
All	**7,354**	**18.10%**	**21.00%**	**−19.60%**	**−0.07%**

Note: The non-VC- and non-buyout-backed IPOs do not include a minimum sales screen.

Source: "Initial Public Offerings: Tables Updated Through 2010," Prof. Jay Ritter, p. 25, June 1, 2011.

lead manager or a co-manager? If not, are they in the selling group? Are they even in the selling group?

Who is getting you the shares? Is it the top producer in the branch or a guy who just started his budding young career? And how much does the advisor know about syndicate? Buying IPOs is tricky and not for everyone. Hypothetically, if one purchased every IPO in a given year, Table 9.6 shows the average first-day returns on an annualized basis since 1980. Buying IPO shares can therefore be short term. However, one can hold the shares for the long haul. An average three-year buy-and-hold strategy for IPOs (whether they are VC-backed or non-VC-backed) appears in Table 9.7.