



C A M B R I D G E A S S O C I A T E S L L C

## U.S. VENTURE CAPITAL INVESTING

2008

Peter Mooradian  
Theresa Sorrentino Hajer  
Jonathan Lee  
Kijana Mack

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**ABSTRACT**

1. Given the challenges the venture capital industry faces and the underwhelming returns experienced since the Internet bubble burst, investors are increasingly asking whether an allocation to venture capital is still appropriate and whether the “venture capital model” is broken. Overall, we do not believe the venture capital model is broken. We continue to regard select high-quality venture capital managers as an effective means to capture returns from entrepreneurial developments across several sectors. However, the industry does face challenges, and the recent uncertainty and volatility in economic and financial markets will certainly have an impact on the industry, though not an entirely negative one. This report will discuss industry trends leading up to the tumultuous last few months, and will also consider future effects resulting from the current and ongoing market turmoil.
2. We believe that venture capital *can* be an attractive component of a diversified non-marketable program. Several underpinnings of a successful venture capital industry are still intact, including robust innovation in the information technology (IT) and health care industries and a high level of high-quality entrepreneurial talent in the United States. Manager selection remains critically important and investors should only invest if they can gain access to high-quality managers. Once the public markets rebound such managers should provide investors with an opportunity to capitalize on the considerable value that could be generated by advances in the IT, health care, and emerging clean technology sectors. Few, if any, other asset classes allow investors to capitalize on this early-stage innovation.
3. An allocation to venture capital is not suitable for all investors. Allocations need to be of a minimum size to obtain appropriate diversification and investors must devote substantial time and resources to the construction of a non-marketable program. Patience is particularly important when implementing a venture capital allocation, given access constraints to the small number of quality managers. Finally, investors must also be able to withstand a high degree of illiquidity: A non-marketable alternative assets allocation takes several years to construct, could take 12 years or more to become self-funding, and could take ten years or more to make a meaningful contribution to total asset performance. The ability to endure illiquidity is acutely necessary today. With exit markets essentially frozen, distributions from non-marketable managers are on pace to be among the lowest on record and show no signs of picking up over the next 12 to 18 months. At the same time, we do not expect a matching decline in capital calls, as managers will continue to support existing portfolio companies and make selective new investments. Even investors with mature programs are now finding that their non-marketable programs are no longer self-funding and many of those programs may become increasingly cash flow negative over the next year or more.

4. Even before the current financial markets crisis, the venture capital industry faced several challenges:

- The lack of a robust initial public offering (IPO) market. The IPO market, a necessary ingredient for compelling venture returns, showed some signs of life in 2004 and 2007, but, in general, the number of IPOs has been depressed since 2000. More recently, second quarter 2008 was the first time in 34 years that there were no venture capital-backed IPOs in a given quarter. According to the National Venture Capital Association, the six venture capital-backed IPO exits through the first three quarters of 2008 raised just \$470.2 million, the lowest three-quarter volume since 1977. Merger & acquisition exits, the most popular exit route for venture capital-backed companies since the Internet bubble, have also declined in the first three quarters of 2008. The events of the last several months have only worsened the situation in exit markets. Anecdotally, venture capital managers do not expect meaningful exits in their portfolios through at least the end of 2009.
- The persistence of capital overhang. Capital commitments have steadily increased since 2002 and again approached untenable levels in 2007. The capital overhang that arose during 1999–2000 persists today, adding an estimated \$13 billion to \$17 billion per year that needs to be put to work alongside new annual commitments.
- The growth of assets under management and expansion of strategies. We believe the current financial markets crisis will accelerate a flight to quality among limited partners. Although a rational reaction to the situation, this response should allow established groups to raise large funds and we expect that many will continue to broaden their investment strategies. Managers will find it more difficult to generate venture-like returns with larger sums of capital and investors will need to consider additional issues arising from expanded strategies.
- Low returns in recent years. Long term, performance of U.S. venture capital has been compelling versus other asset classes (Exhibit 24). However, the ten-year return includes the time period in the late 1990s when venture-backed companies had easy access to the public markets. Performance over most of the last decade has been weak; trailing ten-year returns may soon reflect their worst showing on record as the last years of the 1990s drop out of the calculation.

5. The current market environment could have some positive ramifications for the industry and create new opportunities. Fund raising contracted in fourth quarter 2008 and we expect that will continue in 2009, as investors grapple with challenges in other parts of their portfolios and become more cautious about commitments to venture capital managers, particularly emerging groups and others that have not generated meaningful realized performance since the halcyon days of the mid- to late-1990s. Furthermore, the number of firms operating in the industry should decline at an accelerated pace, as weak firms fail to raise new funds. Pre-money valuations, which have generally been on an upward trajectory since 2002, will decline. Anecdotally, some managers have already reported declines in pre-money valuations during fourth quarter 2008. Given an extended time to exit, we expect that there will be opportunities for managers to recapitalize good quality companies at attractive valuations. Additionally, there will be an opportunity for some groups to invest in growing later-stage companies, since traditional financing routes, including IPOs and credit markets, are effectively closed. Typically,

these deals will have lower technology, market, organization, and business model risk than early-stage investments, but they will likely generate more modest returns.

6. U.S. venture capital firms will need to develop a global footprint to maintain their leadership position and compete in today's global economy. Companies with competing offerings are more likely than ever to be formed in other countries. Successful venture-backed companies need to have a strategy to address growing demand from non-U.S. markets, particularly China and India. Many firms have extended their strategies to make direct investments abroad. Some venture capital firms have taken an opportunistic approach to overseas investment, while others have formally broadened their strategies and established a physical presence.

## **SUMMARY**

## **Introduction**

Given the challenges the venture capital industry faces and the poor returns experienced since the Internet bubble burst, investors are increasingly asking whether an allocation to venture capital is still appropriate and whether the “venture capital model” is broken. Overall, we do not believe the venture capital model is broken. We continue to regard select high-quality venture capital managers as an effective means to capture returns from entrepreneurial developments across several sectors. However, over the last several years, an oversupply of capital has created imbalances that will take time to work out. Increased fund sizes, too many managers, and large limited partner (LP) allocations relative to appropriately skilled managers have contributed to the situation. While the recent uncertainty and volatility in economic and financial markets have made it difficult to ascertain the outlook for the venture capital market, these conditions may also serve to create a better supply/demand balance down the road. This report will discuss industry trends leading up to the tumultuous last few months, and will also consider future effects resulting from the current and ongoing market turmoil.

## **Capital Flows Are Likely to Decline**

### **Commitments**

After dropping to more appropriate levels following the bubble years of 1999 and 2000, venture capital firms steadily increased the amount of capital raised, which started to approach an unsustainable level in 2006 and 2007. New commitments to venture capital funds in the United States increased to \$35.5 billion in 2007, up roughly 13% from 2006 and the highest amount raised since 2001 (Exhibit 1). Excluding the bubble years of 1999 and 2000, this is the second highest amount of capital raised in any given year since the data begin. Additionally, the average fund size raised in 2007 was \$144 million, second only to the record level observed in 2000.

Venture capital fund raising recently decreased in response to the current financial markets situation. In fourth quarter 2008, fund-raising activity dropped considerably, as 43 firms raised only \$3.4 billion, according to the National Venture Capital Association (NVCA). As a point of reference, 84 firms raised \$11.7 billion in the same quarter in 2007 and 62 firms raised \$8.4 billion in third quarter 2008. Fund raising in 2008 totaled \$27.9 billion, a 21% decrease in funds raised from 2007. We expect a further decline in fund raising in 2009, driven by fewer new entrants into the industry and an accelerated pruning of ineffectual firms. Established, high-quality groups will not be immune to a challenging fund-raising environment, but demand for allocations to those groups should persist.

## Investments

Investments by venture capital funds leveled off at roughly \$20 billion (+/- \$2 billion) between 2002 and 2005, reflecting a stabilization after excessive investment from 1999 through 2001 (Exhibit 3). Beginning in 2006, growth in investment activity started to accelerate, reaching just over \$30 billion in 2007. This amount of investment is in excess of any level seen outside of the 1999–2001 period. A sharp drop in fourth quarter 2008 investment activity led to the first yearly decline in venture capital investments since 2003, with annual investments declining 8% to \$28.3 billion in 2008. This amount is likely still in excess of a sustainable investment level. In our 2006 *U.S. Venture Capital Investing* report, venture capital managers anecdotally reported that \$17 billion to \$20 billion was a reasonable amount of capital that could effectively be invested in any given year. However, there are some factors that suggest that the reasonable level could be a bit higher today. Some sectors that are receiving increased attention, namely medical devices, biotechnology, and clean technology (cleantech), are more capital intensive than other areas. Additionally, managers are earmarking an increasing portion of commitments for overseas investment.

We think investment activity will continue to decline over the next several quarters, which will be a positive outcome. Managers will make new investments more selectively and measure carefully the value of supporting marginal performers in their existing portfolios. The decline in investment activity should be tempered by general partners' (GPs) need to support promising portfolio companies for longer periods in the absence of a viable exit market. Additionally, managers will likely see more opportunities to participate in recapitalizations of sound venture capital-backed companies at lower valuations.

Venture capital firms invested \$21.4 billion in expansion- and later-stage companies in 2008 (Exhibit 4), or roughly 76% of total disbursements, generally consistent with levels seen since 2002; prior to 1999, expansion- and later-stage investments accounted for 60% to 65% of annual disbursements. Part of this increase is the result of venture managers supporting companies with more follow-on financings to spur growth and build scale needed for a successful exit, as the public markets became more discriminating. Mature companies often require larger financing rounds, and with time to exit having extended to roughly eight years from four to five years during the Internet bubble, more follow-on rounds of financing are needed to sustain companies. The increase in expansion- and later-stage investments also reflects excess capital in the system over the last several years, leading GPs to diversify beyond early-stage investing. Several established venture groups we cover have expanded their mandate beyond early stage, raising sidecar vehicles, pursuing growth equity strategies in separate funds, and/or dedicating a portion of their funds to growth equity and buyout investments. Growth equity opportunities should increase given the maturation of technology markets and the absence of available capital from credit and initial public offering (IPO) markets. This potential for increased allocation to later-stage and growth equity investments means investors will need to understand managers' underlying portfolios and determine whether their exposure to early-stage venture capital is as much as they originally intended.



## Exits

After showing signs of life in 2004 and more recently in 2007, the exit markets are now frozen and many GPs have highlighted the difficult exit environment as the most pressing issue facing the industry today. According to the National Venture Capital Association (NVCA), in the first three quarters of 2008, there were just six IPOs of venture-backed companies, raising \$470.2 million, the lowest volume for the first three quarters of a year since 1977 (Exhibits 11 and 12). Even merger & acquisition (M&A) exits, which have outnumbered IPO exits by more than 6:1 since 2001, reached their lowest level on an annualized basis since 1999. In third quarter 2008, there were 58 venture-backed M&A deals with a total disclosed value of \$3.5 billion, versus 102 venture-backed M&A transactions with a disclosed value of \$10.8 billion in third quarter 2007. Although corporate cash balances are still generally robust, particularly for pharmaceutical companies, strategic acquirers will find it harder to raise debt for acquisitions in this market environment and are reluctant to use their undervalued stock to fund deals.

We believe that vibrant IPO and public equity markets are needed for the venture capital industry to generate compelling returns. Historically, IPOs have produced the home-run returns that the industry has observed in the past, as managers can capture additional returns by holding on to appreciating stock after the offering date. M&A exits can also result in attractive returns, but the M&A and IPO markets are highly interdependent. The lack of an IPO market, which usually occurs when public markets in general are underperforming, depresses valuations for venture-backed M&A deals, since strategic acquirers realize that a public offering is not a practical exit route for portfolio companies. The absence of an IPO market has had a dampening effect on gross return multiples over the last several years. The percentage of exits generating a multiple of 3 times or more generally ranged between 11% and 19% from 2001 through 2007 (Exhibit 15), a period in which the number of IPOs averaged roughly 55 per year. Looking at an earlier period between 1991 and 1997, when the number of IPOs averaged nearly 193 per year, exits generating a multiple of 3 times trended upward from 18% in 1991 to 33% in 1997.

The near-term prognosis for IPO markets is not promising. Institutional investors are largely focused on the ongoing turbulence in financial markets and, in some cases, their own survival. But exit markets will not be closed indefinitely. We believe that companies with strong prospects are being built in venture capital portfolios today and the possibility exists that sizable returns could accrue to venture investors when public markets rebound and institutional demand for new issuances once again materializes.

## Pre-Money Valuations Are Expected to Soften

After plummeting in 2001 and 2002, the venture capital industry median pre-money valuation has steadily increased, from \$10.4 million in 2003 to \$23.0 million in 2008,<sup>1</sup> according to Dow Jones VentureSource, a level exceeded only in 1999 and 2000 (Exhibit 8). We believe increased capital

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<sup>1</sup> Pre-money valuation data change frequently as additional data are collected. On February 9, 2009, the day we accessed the data, pre-money valuations for 2008 were \$23.0 million.

commitments and a persistent capital overhang have driven the overall increase in valuations. By stage, we note that early-stage valuations have stayed relatively flat for the last several years, with valuation increases concentrated in later-stage rounds (Exhibit 9).

One expected silver lining of the current economic crisis will be a moderation in pre-money valuations. According to Dow Jones VentureSource, quarterly pre-money valuations declined in each quarter of 2008, from roughly \$27 million in first quarter 2008 to approximately \$18 million in fourth quarter 2008. Anecdotally, managers also reported a softening of valuations in fourth quarter 2008, and we expect further declines in 2009. At a high level, reduced fund raising should rein in competition for deals and have a favorable impact on pricing. Furthermore, as the number of venture capital firms continues to decline, we expect remaining GPs will be in a stronger position to negotiate with entrepreneurs seeking venture financing. Most of the correction will be concentrated in late-stage rounds (Series B & C and later) with more modest declines expected in early rounds (Series A). Series A pricing will come down a bit, but venture firms will still want management teams to have a reasonable ownership level to stay committed. Additionally, early-stage pricing in general is less inflated to begin with.

### **Access and Partnership Terms Will Be Modestly Affected**

Given the likelihood of a more challenging fund-raising environment, the impact on access to high-quality managers and partnership terms needs to be considered. Access to the best managers with strong track records has become acutely difficult as the number of investors has risen. With the current environment creating liquidity challenges for some LPs, many are cutting back on commitment levels or even selling some of their partnership interests in the secondary market. This suggests improving access prospects for those LPs that still have the wherewithal to build a venture program. However, we believe that constrained LPs will tend to scale back or eliminate relationships with lower-quality managers while continuing to support established groups. Although some of the *excess* demand for allocations to high-quality funds may disappear and there may be some limited opportunities for allocations in the future, gaining access to top-tier venture firms will remain challenging.

Many venture firms that charged a carried interest of 25% to 30% in the frothy bubble environment of the late 1990s and early 2000 maintained such premium economic terms in subsequent post-bubble funds, made possible by continued strong LP demand. Moreover, after initially scaling back fund sizes, a number of managers raised increasingly larger funds more frequently, generating significant fee income streams. This has created a misalignment of GP and LP interests today. Given the underwhelming performance of venture capital over the last decade and today's challenging fund-raising environment, we believe that LPs will be able to (and are more likely to) push back on economic and other terms. Given the high demand that is likely to persist for top-tier groups, we think that, in most instances, they will still be able to dictate premium terms. However, the current environment presents a unique opportunity for LPs to seek better alignment of terms and fees with GPs, with the greatest success expected with second-tier groups.

## **A Large Capital Overhang Remains but Should Decline**

Venture capital overhang became a prominent issue in 1999–2000, as a record number of firms entered the industry and many raised billion-dollar-plus funds. In 2002, industry observers estimated that the market had a capital overhang of approximately \$80 billion. Firms subsequently downsized funds and fund raising declined significantly from record levels. Despite the positive impact of these actions on unallocated capital, in our 2006 *U.S. Venture Capital Investing* report we estimated venture capital overhang to be \$58 billion, a significant sum that has grown over the last two years to an estimated \$67 billion by June 30, 2008 (Exhibit 16). Divided over a four- to five-year standard investment period, this overhang equates to an additional \$13 billion to \$17 billion that needs to be put to work alongside capital that is being raised on an annual basis.

As noted earlier, we expect venture capital fund raising will decrease, helping to reduce the current capital overhang. Again, we expect the decline will be driven by an accelerated reduction in the number of venture capital firms. Firms with strong track records will still be able to raise funds, sometimes in excess of \$500 million, though we expect fund-raising cycles to lengthen even for these groups, also helping to shrink the overhang.

## **Health Care and Cleantech Are Growing Investment Sectors**

Software has been the recipient of the most venture capital investment every year starting in 1996 (Exhibit 5). Companies adapting software applications to run over the Internet (software as a service or SaaS) and the increasing use of software to virtualize data center hardware have been notable recent investment themes. Growing investment in health care and cleantech, however, has helped loosen software's grip on the top spot. We believe health care investments will be better suited to weather the current economic climate, for reasons discussed later, and thus may garner an increasing share of venture capital disbursements in the near term. Some cleantech subsectors, particularly those operating in the capital-intensive biofuels, solar, and wind sectors, will be severely tested in the face of falling energy prices and a tight credit market over the near term. However, the cleantech sector is broad and we should see continued strong investment in demand-side or energy-efficiency opportunities. We expect information technology (IT) sectors in general will face significant challenges. Enterprise spending on IT is likely to contract in a recessionary environment and a clouded outlook for online advertising spending coupled with reduced consumer discretionary income will have a negative impact on other sectors like digital media and consumer Internet.

Health care, comprising both biotechnology and medical devices & equipment, grew significantly following the 2001 Internet and telecom bust, jumping from 14.9% in 2001 to roughly 25% in 2002. The portion of venture capital investment devoted to health care has since hovered close to or at 30%, and accounted for roughly 31% of investment dollars in 2007, according to NVCA. Managers have been attracted to health care sectors due to demographic trends and the challenges facing large-cap pharmaceutical companies, factors that will persist in a difficult economic environment. An aging population, the burgeoning obesity epidemic, and runaway health care costs are driving the need for new medical approaches and

treatments. Furthermore, pharmaceutical companies face a major challenge over the next several years as a significant number of highly profitable drugs come off patent. These companies' recent research and development efforts have not been productive and they are increasingly looking to venture-backed biotechnology companies to fill their pipelines.

Over the last few years, cleantech has emerged as a prominent sector within the venture capital landscape.<sup>2</sup> Cleantech loosely refers to “products, technologies, and processes [that] through improvements in the energy supply chain from the energy source to the point of consumption, result in a reduction in carbon dioxide” and other toxic emissions. Cleantech is a broad investment area, and we categorize cleantech into three main sectors: clean/alternative electricity (e.g., solar, wind, geothermal), clean/alternative fuels (e.g., ethanol, cellulosic ethanol, biodiesel), and other clean technologies (e.g., energy efficiency, advanced materials, water purification, among many others). Increasing awareness of climate change, rising energy prices (at least until very recently), concern about energy security, and technological advancements have led to increased investment opportunities and a large influx of capital into the sector. According to Cleantech Group, LLC, North American cleantech investment has skyrocketed since 2005, with the annual level of investment increasing from \$1.3 billion in 2005 to \$6.0 billion in 2008. In 2008, cleantech accounted for roughly 21% of total venture capital investment (Exhibit 7), up from roughly 6% in 2005.

The significant growth in cleantech investments since 2005 has fueled speculation about a cleantech “bubble.” The sector has seen some spectacular entry valuations over the last 12 months, and an increasing number of managers, with limited cleantech investment experience, are exploring the area. There have been relatively few exits of venture capital-backed cleantech companies to help validate these valuations and the amount of capital flowing into the sector. The spike in venture capital cleantech investment since 2005 has been concentrated in energy generation or supply-side opportunities including biofuels, wind, and solar. These investments will be tested in the near term by a recessionary environment and a troubled credit market. The recent plunge in oil and natural gas prices—down by nearly 70% since July 2008—will reduce incentives for utilities and consumers to adopt alternative energy solutions, which are now more expensive on a relative basis. Additionally, supply-side cleantech opportunities tend to be capital intensive, and project finance is frequently required for these companies to generate positive cash flow and position them for a successful exit. Clearly, today's credit markets are challenging, making it difficult for these companies to raise needed capital. According to New Energy Finance, worldwide project financings for new construction of wind, solar, and biofuel projects fell through the first three quarters of 2008, and the decline is expected to be sharper in fourth quarter 2008 and in 2009. Finally, there is uncertainty about future government funding of and subsidies for alternative energy. Funding will now have to compete with government spending in other areas not expected before the recent financial markets crisis. That said, the recently passed stimulus package (the American Recovery and Reinvestment Act) does include funding for alternative energy. At best, exits for this first wave of cleantech investments will be delayed. At worst, we will see an increasing number of failed biofuel, solar, and wind investments.

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<sup>2</sup> Please see our 2007 report *Investing in Clean Energy and Technology*.

Despite the recent challenges faced by supply-side cleantech companies, we still think that cleantech will persist as a viable investment sector over the long term. Energy prices are indeed an important factor in the cleantech investment equation, and their volatility over the last 12 months cannot be ignored. In fact, oil and natural gas prices may fall further still, given the possibility of a deep global recession and reduced demand for energy by China and India. However, unlike the 1980s when interest in cleantech collapsed as oil prices plunged, there are other factors contributing to demand for clean technologies today, namely heightened concern about the environment and energy security. Additionally, the cleantech sector is broad and we think that less capital-intensive demand-side opportunities will materialize in areas outside of energy generation, such as innovative lighting technology, smart electrical grid applications, and energy-efficient building materials. Finally, we are beginning to see a more experienced entrepreneurial base in the cleantech sector that was nonexistent just a few years ago, and discussions with managers suggest that pre-money valuations for cleantech deals showed declines in fourth quarter 2008, something that should continue in 2009.

### **California and the Northeast Continue to Attract Most Investment**

Over the last decade, Northern California has dominated venture capital investment, attracting more than 30% of total dollars invested since 1999 (Exhibit 6). The Northeast has consistently attracted the second highest level of investment over the same period. Together, these two regions accounted for over 60% of total dollars invested in 2007. GPs continue to focus their attention on start-ups located in these regions since they previously spawned big winners. The success of these regions is tied to their vibrant entrepreneurial culture and high availability of management talent, both crucial to building winning companies. Although other areas of the United States have less capital competing for deals, usually resulting in lower pre-money valuations, we believe that a lower level of entrepreneurial and management talent will tend to limit most other regions from generating breakout companies.

### **Larger Fund Sizes Present Challenges**

Manager selection is a prerequisite for success in the venture capital asset class and due diligence should first focus on the quality of the investment team and its ability to execute a differentiated investment strategy. Although not the most important consideration, investors should also carefully weigh fund size, since it can have a material impact on a manager's ability to generate venture-like returns. Of the 1,003 venture capital funds tracked by Cambridge Associates in vintage years 1981 through 2003, 289 (29%) have been able to generate a net multiple greater than 2.0 times. While 22% of the 1,003 fund examined were large funds, defined as funds greater than \$250 million in size, just 7% of funds generating a net multiple greater than 2.0 times were similarly sized.

We have constructed a basic model that projects the total market capitalization that a fund's portfolio companies would need to generate in order for LPs in that fund to realize a 2 times net return, both for a \$250 million fund as well as a \$750 million fund. We encourage the reader to focus on the increased amount of

implied market value that a larger fund needs to generate in order to deliver a 2 times net multiple, rather than the models' admittedly broad underlying assumptions.

In order for a \$250 million fund to generate a 2 times net multiple, it needs to generate total value of \$563 million, which includes the 20% carry that a GP would collect, across a typical portfolio of 20 total companies. Assuming a fund owns an average of 15% of its portfolio companies at exit, the implied total market capitalization of those companies is \$3.8 billion, or an average of \$188 million per portfolio company. However, the venture investment model assumes that home-run investments will overcome losses in the portfolio and generate an overall compelling return. We assumed roughly 30% of portfolio companies will be full or partial losses, and 50% of the portfolio would generate returns between 1 and 3 times. Consequently, based on our model, the fund's strong performers (3 times or greater gross returns), or roughly 20% of the portfolio, would need to generate total market capitalization of nearly \$2 billion, or an average valuation of \$500 million. For a \$750 million fund, generating a 2 times net return becomes more difficult from a purely mathematical perspective. Six companies would need to generate a total market capitalization amount of nearly \$6 billion, or nearly \$1 billion per company. To put these market capitalization numbers in perspective, we note that the average valuation for a venture capital-backed M&A exit in 2007 was just \$177 million (Exhibit 17), according to NVCA data.

Clearly, this model is basic and makes a number of general assumptions. And it overlooks some inherent disadvantages that a small fund possesses. Specifically, small funds can have a difficult time maintaining ownership positions in their portfolio companies as more rounds of financing are raised. In contrast, established groups with larger funds are typically more adept at raising capital at high valuations for their most promising companies. Consequently, it is safe to assume that the larger funds will maintain higher ownership positions in their big winners, but we do not believe the challenges of generating a venture-like return with a larger fund disappear entirely.

**IMPLIED MARKET VALUE TO RETURN 2 TIMES MULTIPLE****Fund Size: \$250 Million**

Fund Size (millions)	\$250
Net LP Multiple Expected	2.0x
Carry	20.0%
Number of Companies	20
Average Investment per Company (millions)	\$12.5
Average Ownership at Exit	15.0%
Required Gross Value to Hit Multiple (millions)	\$563
GP Carry (millions)	\$63
Return to LPs (millions)	\$500
Implied Total Value at Exit (millions)	<b>\$3,750</b>
Implied Value per Company (millions)	<b>\$188</b>

	Assumed Multiple	Proportion (%)	No. of Companies	Total Fund Cost (\$ millions)	Return to Fund (\$ millions)	Implied Total Market Value (\$ millions)
Full Losses	0.0x	15	3	38	---	---
Partial Losses	0.5x	15	3	38	19	125
1x–3x Multiple	2.0x	50	10	125	250	1,667
3x–5x Multiple	4.0x	10	2	25	100	667
Big Wins	5.0x+	10	2	25	194	1,292
Totals		100	20	251	563	3,750

**Fund Size: \$750 Million**

Fund Size (millions)	\$750
Net LP Multiple Expected	2.0x
Carry	20.0%
Number of Companies	30
Average Investment per Company (millions)	\$25.0
Average Ownership at Exit	15.0%
Required Gross Value to Hit Multiple (millions)	\$1,688
GP Carry (millions)	\$188
Return to LPs (millions)	\$1,500
Implied Total Value at Exit (millions)	<b>\$11,250</b>
Implied Value per Company (millions)	<b>\$375</b>

	Assumed Multiple	Proportion (%)	No. of Companies	Total Fund Cost (\$ millions)	Return to Fund (\$ millions)	Implied Total Market Value (\$ millions)
Full Losses	0.0x	15	5	113	---	---
Partial Losses	0.5x	15	5	113	56	375
1x–3x Multiple	2.0x	50	15	375	750	5,000
3x–5x Multiple	4.0x	10	3	75	300	2,000
Big Wins	5x+	10	3	75	581	3,875
Totals		100	30	750	1,688	11,250

## **Larger Funds Come in Different Forms**

Some firms have simply expanded the size of their early-stage investment activities, which is problematic based on our earlier analysis. Others have kept the amount of capital devoted to early-stage investments relatively constant, and have either broadened their strategy along with fund size, or launched separate vehicles for new initiatives alongside core early-stage funds. We recognize the need for managers to adapt to changing market conditions and evolve their strategies to capitalize on new trends. For instance, with the IPO and credit markets essentially frozen, there will be a number of opportunities to provide growth capital to sound companies.

However, broadened strategies create a number of issues that investors need to consider. For instance, is the manager expanding in a thoughtful and measured way with appropriate senior oversight and leadership? Does the manager have the appropriate skill sets—sourcing networks, due diligence, domain expertise, and transaction structuring, among others—and a quality investment team to execute in the new focus areas? Is the manager hiring a new team to launch a strategic initiative, or will the existing team take on those responsibilities? If the latter, will existing core early-stage activities be neglected?

Expansion into growth equity investing has been a driver of increased fund size at a number of established firms over the last few years. Target companies typically have established products, customers, and business models and are often profitable. Invested capital is used to expand existing operations, rather than help develop a new product and/or build out a new management team. Finally, growth equity investments are usually highly structured, providing some downside protection for the manager if the company underperforms. Although many of the risks inherent in early-stage investments are largely absent or mitigated in growth equity deals, these deals have their own risks. For instance, returns are usually more sensitive to prices paid and the potential use of debt also entails risk. Growth equity deals can still provide attractive returns, but they will typically have lower upside potential than early-stage investments.

## **Venture Managers Operate in an Increasingly Global World**

Today, globalization of technology extends well beyond outsourcing efforts, and U.S. venture capital firms must guide U.S.-based portfolio companies in an increasingly global economy. Most successful venture-backed companies need to have a strategy to address growing demand from non-U.S. markets, particularly China and India. Case in point: China has over 600 million mobile subscribers (2.5 times larger than the United States) and India's 250 million subscribers are growing by nearly 10 million per month (the United States added 10 million new subscribers in all of 2007), reported by a venture investor who cited wireless associations CTIA and GSMA, and AC Nielsen. In many cases, start-up companies will pursue an international strategy alongside a U.S. market launch.

Until recently, most global venture capital activity focused on the IT industry, but today venture capital firms are increasingly focusing their attention on the cleantech/alternative energy and life science industries. Cleantech is perhaps the largest new technology wave as long-term global demand for energy



continues to expand with the rise of the middle class standard of living and as climate change becomes a growing concern. While one should not ignore the uncertain short-term impacts of current financial market turmoil and the arrival of a deep global recession, we do expect long-term trends to persist. In the life sciences industry, many venture-backed companies have turned to developing and emerging countries to outsource some clinical trial work and manufacturing. We expect this trend to increase as early-stage companies look to cut costs and accelerate development paths in an increasingly competitive and global market. Early this decade, the United States accounted for 40% to 50% of the growth in global pharmaceutical sales each year. Next year, the United States will account for just 9%, according to IMS Health as reported in an October 2008 *Wall Street Journal* article. The top seven emerging markets will account for about 34% of global pharmaceutical sales next year, up from 7% in 2000.

Today, venture firms need to build a global network, both to identify the leading entrepreneurs and to win compelling deals. For example, entrepreneurs and professionals with roots in the Indus region founded The Indus Entrepreneurs, or TiE, in Silicon Valley in 1992. Today there are over 12,000 members and 1,800 charter members including entrepreneurs, venture capitalists, private equity firms, angels, law firms, and tech and management professionals, spread over 53 chapters in 12 countries. Global technology companies have built many research facilities in China and India, which attract graduates from the countries' leading universities and other research institutions. Recently, IBM announced the opening of a new research facility in Shanghai and extension of the IBM China Research Laboratory. "The very nature of research is changing. It is more open, more global and more collaborative," said Dr. John E. Kelly III, IBM senior vice president and director of IBM Research. "The establishment of IBM Research in Shanghai reflects both the rich pool of science and engineering talent in China as well as our continued commitment to expand our collaboration with Chinese enterprises and academic institutions."

Companies with competing offerings are more likely than ever to be formed in other countries. Consequently, venture capital firms must have a sense of investment activity beyond U.S. borders. We believe that to successfully guide portfolio companies in a global economy U.S. venture firms must expand their networks and knowledge of non-U.S. markets. In fact, we would argue that top-tier venture groups cannot afford *not* to take steps to develop a global footprint. Some groups have recruited investment professionals with international backgrounds and professional experience to expand their network and relationships on a global basis, but will invest minimally, if at all, outside the United States. There are also an increasing number of firms establishing expansion and satellite offices in China and India to familiarize themselves with these markets and to promote the development of portfolio companies, but also to get on the radar screen of local venture capitalists so as to facilitate co-investment opportunities in the future.

Of course, many U.S. firms have gone beyond expanding international capabilities and have invested increasing amounts of capital directly in China- and India-based companies (Exhibits 18 and 19). Investment in China-based companies has increased significantly since 2005. Chinese investment was initially dominated by IT, but there has been a shift to non-technology-focused business, consumer, and retail areas, and, to a lesser degree, health care. It is important to remember that some sectors, which are mature and characterized by slow growth in developed countries, are ripe for strong growth in China, given that country's stage of development. Venture investment in India has also shown strong growth over the last few

years, and overall, investment activity to date has been concentrated in mid- and late-stage opportunities in India, as opposed to early stage.

Some firms have broadened their strategies to pursue international opportunities in the same fund offering. The benefits of this can be a more consistent investment approach and decision process. The potential issues may be senior-level capacity and an inadequate amount of autonomy for the international GPs to integrate and work with the local entrepreneurial community. Other groups have built out individual funds with functioning teams and separate investment partnerships. Senior level capacity (from the core team) is again a consideration to oversee the international efforts and help ensure the firm's ability to extend its brand without diluting it. Investors should also evaluate the international team's relevant experience and track record in its target market, as well as the depth of a shared culture and investment approach between the international and core U.S. teams. There have been some recent examples of international teams splitting from parent firms due to an insufficient bond and shared conviction between the two groups.

China's and India's economies certainly have attractive macro characteristics, notably a large and growing middle class. But translating those attributes into strong venture returns is not a straightforward exercise. Concerns persist over China's intellectual property laws, regulatory regime, and the transparency of its financial markets. Fundamentally, China is still a state-run economy. In India, inadequate infrastructure remains a challenge. We believe that a global mindset will be a prerequisite for successful venture capital managers going forward. That said, risks remain for direct investment in China and India, and it will be important that non-U.S. investment activities do not distract firms from their core U.S. strategies.

## **Conclusion**

While challenges remain for the venture capital industry—particularly related to increased fund sizes, too many managers, a challenged exit environment, and LP allocations that may be too large relative to the opportunity set of appropriately qualified and skilled managers—some positive characteristics have been sustained. Most notably, innovation and the availability of entrepreneurial and managerial talent persist. Additionally, the current financial crisis should improve the demand/supply imbalance in the venture capital industry, but we note that annual commitments will have to materially drop off to have a meaningful impact.

Venture capital provides a low-cost option to capture value borne out of early-stage innovation in the IT, health care, and, more recently, cleantech sectors, something that other asset classes cannot provide. Most venture capital funds have not lost money for LPs. Roughly two-thirds of the venture capital funds tracked by Cambridge Associates in vintage years 1981 through 2003 generated a net multiple greater than 1.0 times. Nearly 50% of the funds generating less than a 1.0 times net multiple were concentrated in the difficult vintage years of 1999 and 2000 (Exhibit 20). Exit markets have been a challenge for several years, but they are also cyclical, and we think it is too draconian to assume that there will not be a recovery and acceleration of returns in the industry at some point in the future. Venture capital managers will have the opportunity to add unusually high alpha when public markets and IPO issuances eventually recover.

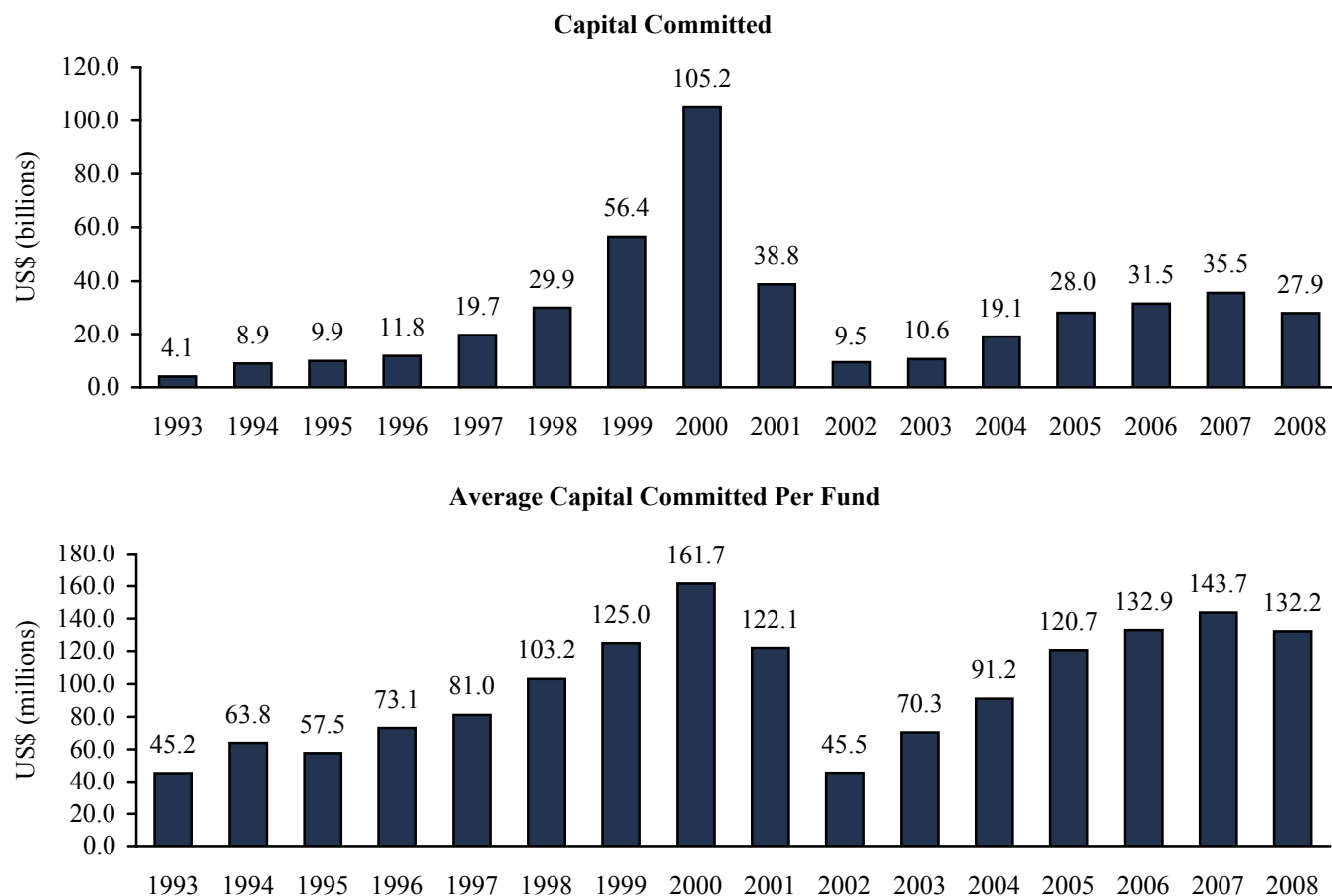
Rather than sticking stubbornly to fulfilling asset allocation targets to venture capital, investors should selectively commit to strong venture firms that have demonstrated an ability to invest profitably over multiple funds. Unfortunately, this is a small group that is much narrower than that found in other asset classes. According to a sample of Cambridge Associates data, only 23% of firms (with three venture capital funds or more raised in vintage years 1981–2003) have at least three-quarters of their funds in the first or second quartile, which is where industry distributions tend to be concentrated (Exhibit 22). On an absolute basis, only 22% of firms tracked by Cambridge Associates with at least three funds raised between 1981 and 2003 (141 total) have generated at least a 2 times multiple across funds. Given these statistics, investors must be selective and particularly patient, and should have realistic expectations about how much capital can be effectively allocated to venture capital. This may mean reducing target allocations or extending the time period over which a program will be built. Without a proper level of patience and selectivity, a venture capital allocation is unlikely to deliver acceptable results.

## **EXHIBITS**

## Exhibit 1

## VENTURE CAPITAL COMMITMENTS

January 1, 1993 – December 31, 2008



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total Capital Committed US\$ (billions)	4.1	8.9	9.9	11.8	19.7	29.9	56.4	105.2	38.8	9.5	10.6	19.1	28.0	31.5	35.5	27.9
Number of New Funds	90	140	172	162	243	290	451	651	318	208	151	210	232	237	247	211
Average Capital Committed Per Fund US\$ (millions)	45.2	63.8	57.5	73.1	81.0	103.2	125.0	161.7	122.1	45.5	70.3	91.2	120.7	132.9	143.7	132.2

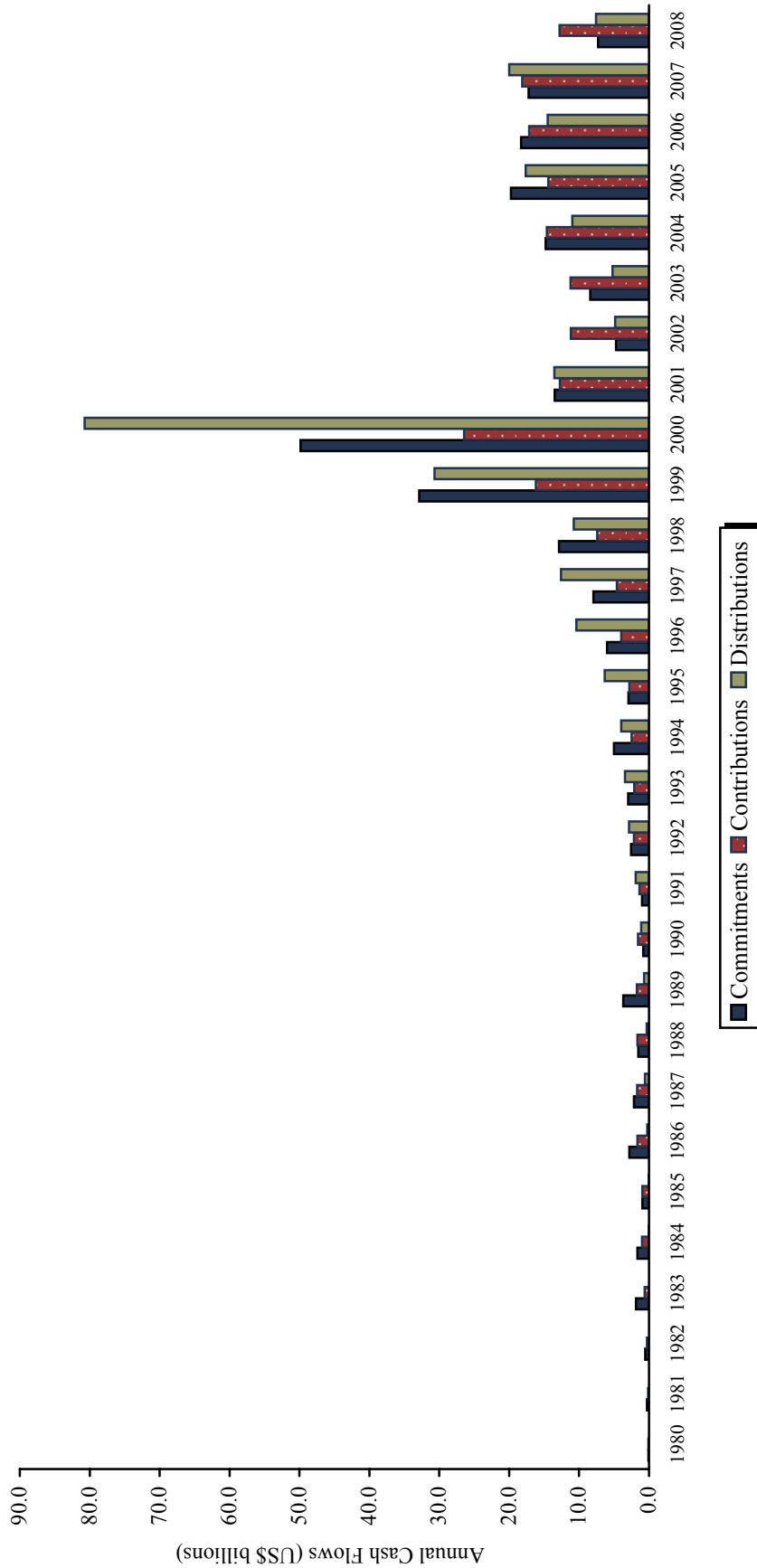
Sources: National Venture Capital Association and Thomson Venture Economics.

Note: Commitment data include investment activity of professional venture capital firms with or without a U.S. office, SBICs, venture subsidiaries of corporations, institutions, investment banks, and similar entities whose primary activity is financial investing.

Exhibit 2

HISTORICAL ANNUAL CASH FLOWS OF U.S. VENTURE CAPITAL PARTNERSHIPS

January 1, 1980 – September 30, 2008



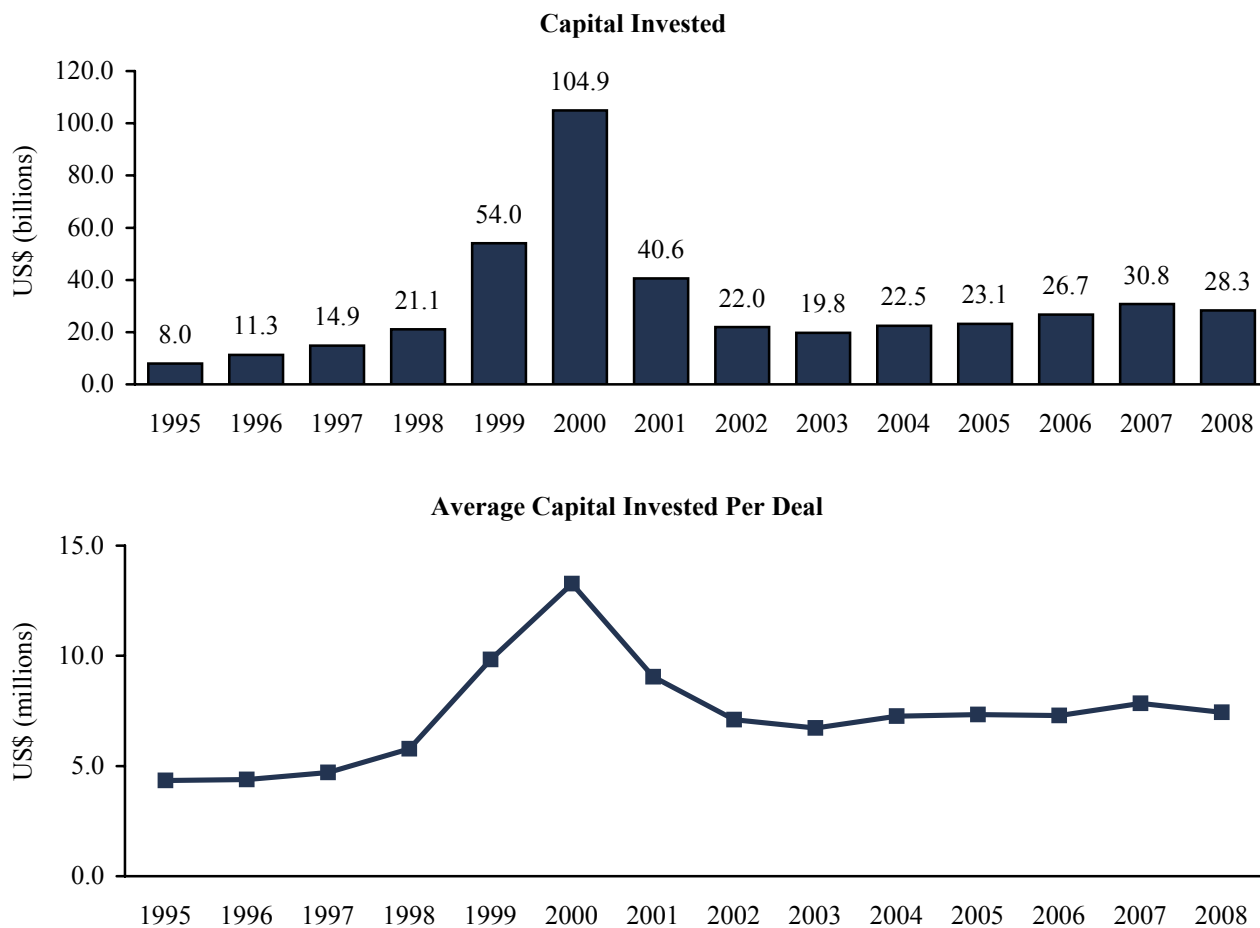
Source: Cambridge Associates LLC Non-Marketable Alternative Assets Database.

Note: Data represent both limited partners' and general partners' cash flows.

## Exhibit 3

## U.S. VENTURE CAPITAL INVESTMENTS

January 1, 1995 – December 31, 2008

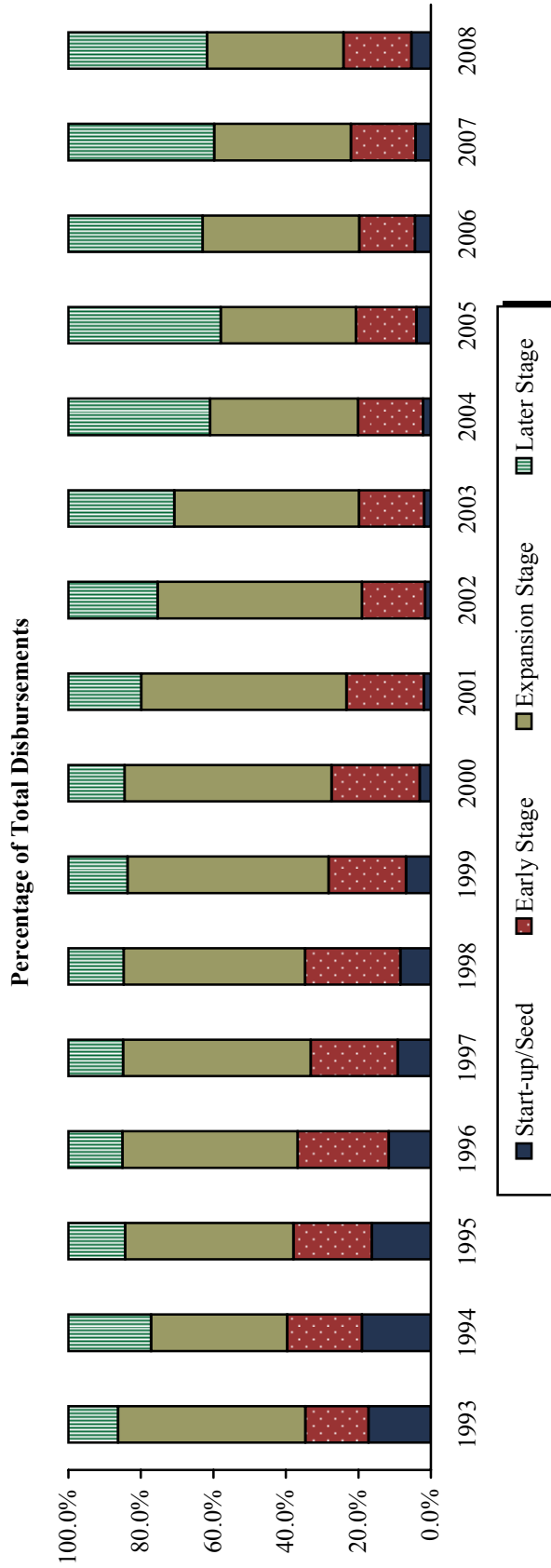


	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Total Capital Invested US\$ (billions)	8.0	11.3	14.9	21.1	54.0	104.9	40.6	22.0	19.8	22.5	23.1	26.7	30.8	28.3
Number of Companies	1,840	2,573	3,157	3,647	5,502	7,903	4,485	3,101	2,940	3,090	3,154	3,661	3,931	3,808
Average Capital Invested Per Company US\$ (millions)	4.3	4.4	4.7	5.8	9.8	13.3	9.0	7.1	6.7	7.3	7.3	7.3	7.8	7.4

Sources: National Venture Capital Association and PricewaterhouseCoopers.

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**Exhibit 4**  
**VENTURE CAPITAL DISBURSEMENTS BY FINANCING STAGE**



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Start-up/Seed</b>	0.6	0.8	1.3	1.3	1.3	1.4	1.8	3.2	0.8	0.3	0.3	0.5	0.9	1.2	1.3	1.5
<b>Early</b>	0.6	0.8	1.7	2.8	3.6	3.6	11.6	25.5	8.6	3.8	3.6	4.0	3.9	4.1	5.5	5.3
<b>Expansion</b>	1.9	1.5	3.7	5.4	7.7	10.5	30.0	60.0	23.0	12.4	10.1	9.2	8.6	11.5	11.6	10.6
<b>Later</b>	0.5	0.9	1.3	1.7	2.3	3.2	8.9	16.3	8.2	5.4	5.8	8.8	9.7	9.9	12.4	10.8
<b>Total</b>	3.7	4.1	8.0	11.3	14.9	21.1	54.0	104.9	40.6	22.0	19.8	22.5	23.1	26.7	30.8	28.3

Sources: National Venture Capital Association, PricewaterhouseCoopers, and Thomson Venture Economics.

Note: Figures may not total due to rounding.



## Exhibit 5

## DISTRIBUTION OF VENTURE CAPITAL DISBURSEMENTS BY INDUSTRY

Industry Group	Percentage of U.S. Dollars Invested													
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Biotechnology	10.4	10.5	9.5	7.5	3.9	4.1	8.5	14.8	18.5	19.0	16.8	17.5	16.9	15.8
Business/Financial	7.0	10.3	10.0	12.5	17.2	17.1	12.3	8.8	9.0	7.2	10.2	8.9	9.4	10.7
Communications	12.0	11.6	10.9	13.8	15.1	16.0	13.2	10.7	9.2	8.5	10.2	9.7	7.2	5.7
Computer Hardware & Services	8.5	9.1	9.1	8.7	9.9	12.7	15.6	14.3	10.7	9.5	8.6	6.0	6.1	3.8
Consumer Products & Services	7.0	4.6	5.1	3.1	4.8	3.3	1.7	1.1	0.9	1.4	1.6	1.9	1.6	1.6
Health Care-Related	14.0	12.0	12.9	10.1	5.6	3.8	6.4	10.1	9.6	10.2	11.4	12.2	14.1	13.3
Industrial/Energy	6.8	4.5	4.9	6.9	3.1	2.4	2.9	3.4	3.9	3.5	3.7	7.2	10.4	16.1
Retailing & Media	<b>15.5</b>	11.9	8.6	11.9	17.8	13.0	6.7	4.0	4.8	5.1	5.8	6.9	7.5	7.8
Semiconductors & Electronics	4.3	4.5	6.0	4.1	3.0	4.3	7.0	8.6	10.2	11.3	10.4	10.7	8.8	7.6
Software	14.5	<b>21.1</b>	<b>22.9</b>	<b>21.5</b>	<b>19.6</b>	<b>23.4</b>	<b>25.8</b>	<b>24.2</b>	<b>23.1</b>	<b>24.3</b>	<b>21.3</b>	<b>19.0</b>	<b>17.8</b>	<b>17.7</b>

Sources: National Venture Capital Association and PricewaterhouseCoopers.

Notes: Data for 2008 are through September 30. The maximum value for each year is in bold. The "health care-related" group includes health care products, medical diagnostics, surgical equipment, and health care services.

## Exhibit 6

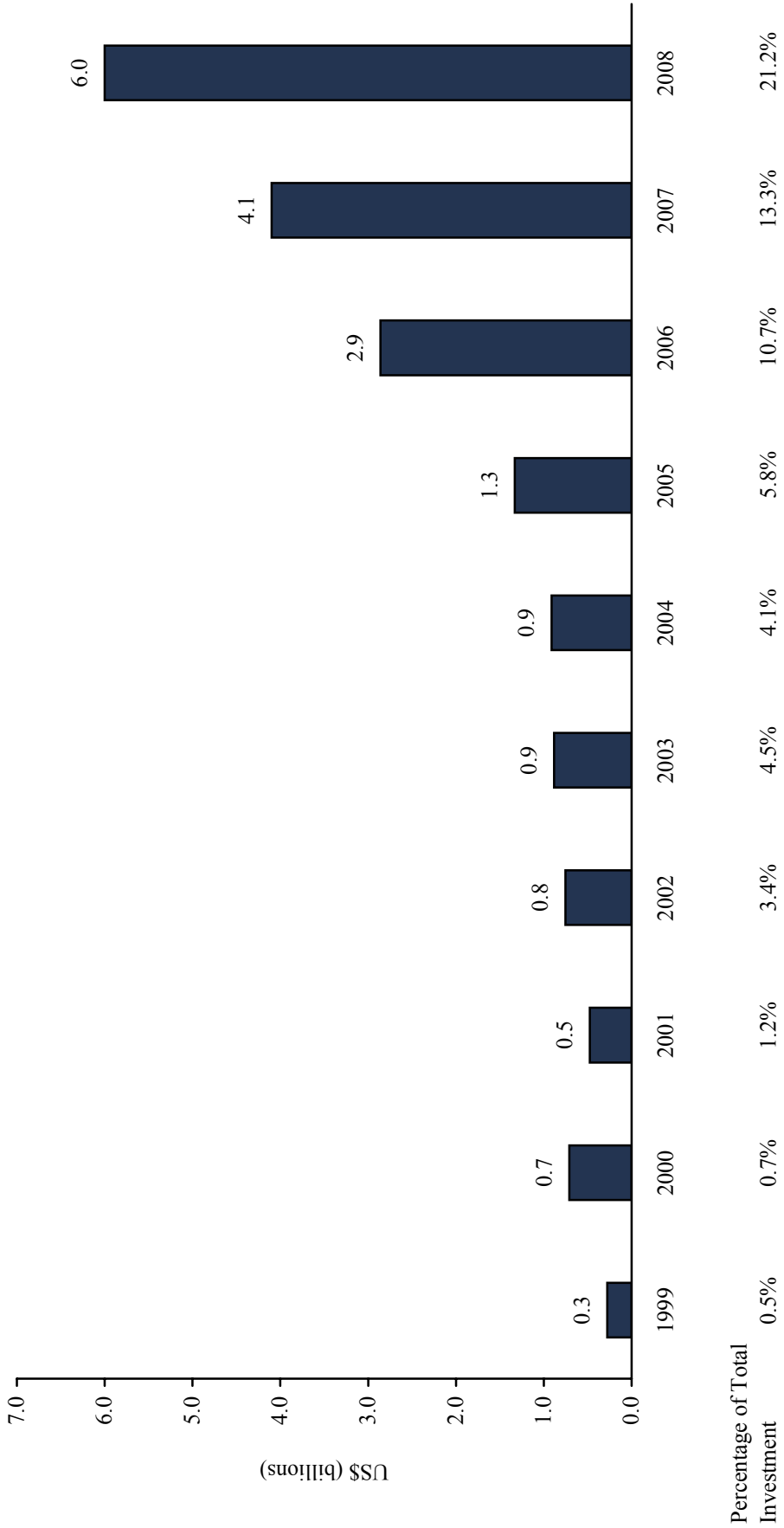
## DISTRIBUTION OF VENTURE CAPITAL DISBURSEMENTS BY REGION

Region	Percentage of U.S. Dollars Invested													
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Northern California	23.3	<b>30.9</b>	<b>32.2</b>	<b>29.0</b>	<b>34.0</b>	<b>32.6</b>	<b>32.2</b>	<b>33.1</b>	<b>33.6</b>	<b>36.0</b>	<b>36.0</b>	<b>36.3</b>	<b>36.1</b>	<b>39.4</b>
Northeast	<b>24.8</b>	25.8	26.9	28.7	26.0	29.2	30.1	28.0	30.3	29.9	27.7	27.1	25.1	23.9
Midwest	13.2	12.1	11.3	14.4	10.6	11.1	9.9	9.3	10.4	7.3	7.7	8.0	8.2	10.0
Southern California	16.3	10.3	8.8	8.8	8.9	8.5	8.9	10.3	9.8	9.7	11.7	11.9	11.8	11.9
Southeast	10.4	10.0	9.4	7.8	8.5	7.6	6.9	8.1	5.5	5.9	4.8	4.7	6.6	4.4
Northwest	4.8	4.4	3.7	3.9	4.6	3.4	3.4	3.4	3.2	4.5	4.4	4.8	5.6	4.6
Southwest	7.2	6.3	7.6	7.3	7.4	7.2	8.3	7.8	7.3	6.8	7.5	7.1	6.6	5.8
Alaska/Hawaii/Puerto Rico	0.1	0.2	0.1	0.0	0.0	0.2	0.2	0.0	0.1	0.1	0.1	0.2	0.1	0.1
Unknown	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0

Sources: National Venture Capital Association and PricewaterhouseCoopers.

Notes: Data for 2008 are through September 30. Figures may not total due to rounding. The maximum value for each year is in bold. Northern California consists of Sacramento and Silicon Valley and southern California consists of San Diego and Orange County. The Northeast includes New York, New England, Philadelphia, and Washington, D.C. The Southwest consists of Texas and the southwest region, and the Midwest consists of Colorado and the central region.

**Exhibit 7**  
**NORTH AMERICAN CLEANTECH VENTURE CAPITAL INVESTMENTS**  
**1999–2008**



Sources: Cleantech Group, LLC and National Venture Capital Association.

## Exhibit 8

## MEDIAN PRE-MONEY VALUATIONS BY INDUSTRY

January 1, 1998 – December 31, 2008



## Median Pre-Money Valuations (US\$ millions)

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Information Technology	\$17.5	\$25.0	\$30.0	\$16.4	\$10.4	\$10.0	\$12.2	\$15.9	\$19.0	\$15.0	\$30.7
Health Care	\$13.2	\$14.0	\$20.0	\$17.2	\$14.2	\$14.8	\$18.0	\$18.3	\$25.2	\$20.9	\$18.0
Products & Services	\$12.8	\$22.0	\$24.0	\$15.0	\$8.7	\$8.1	\$10.2	\$9.0	\$12.8	\$10.1	\$20.0
Other	\$13.0	\$26.4	\$13.0	\$20.0	\$8.0	\$5.9	\$6.0	\$8.5	\$16.8	\$10.5	\$12.8
Overall	\$15.0	\$21.1	\$25.0	\$16.0	\$10.9	\$10.4	\$13.0	\$14.7	\$18.3	\$15.0	\$23.0

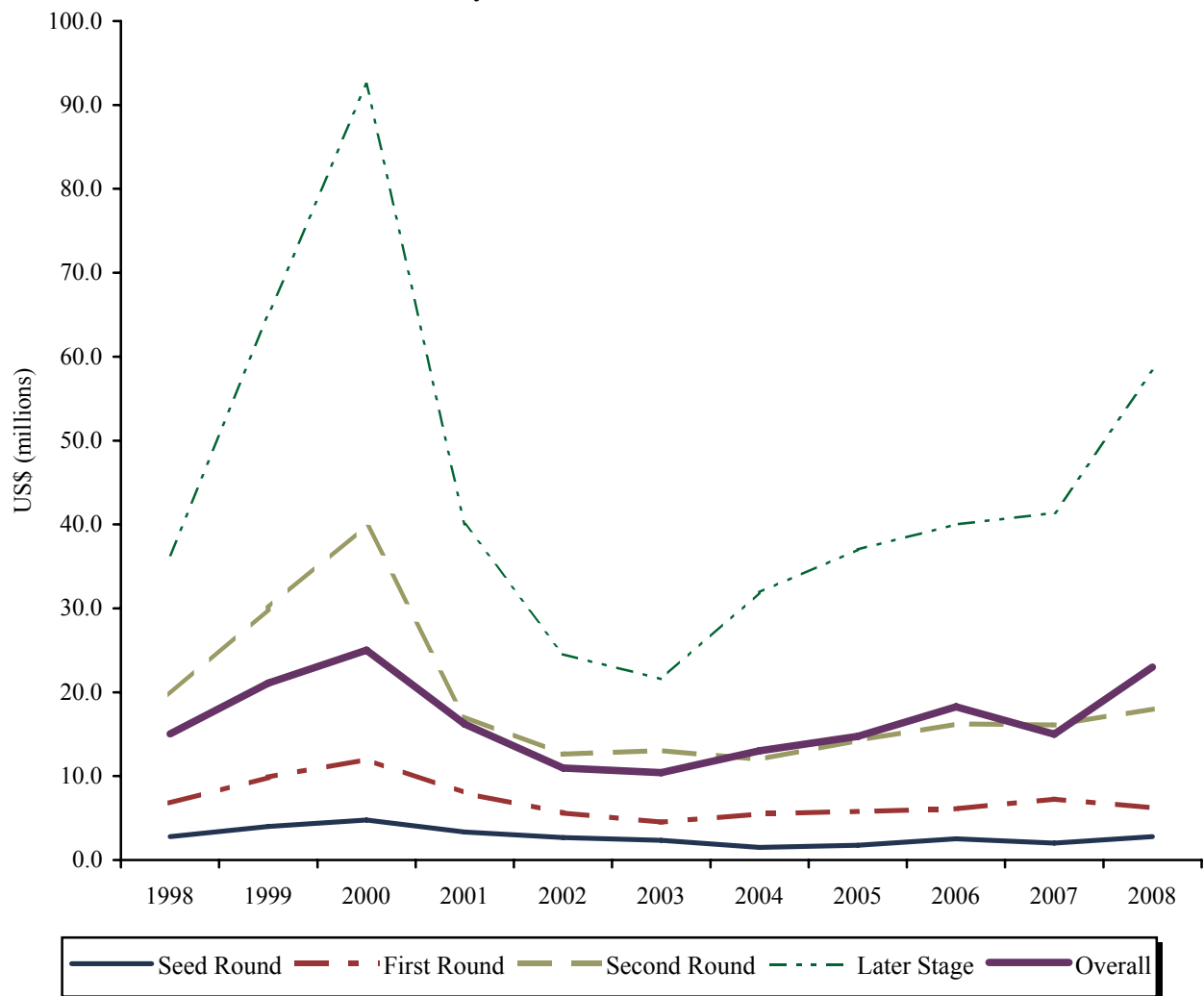
Source: VentureOne Corporation.

Notes: Data prior to 1998 are not available. Some cleantech valuations are included in the "Other" sector. Data were accessed on February 9, 2009.

## Exhibit 9

## MEDIAN PRE-MONEY VALUATIONS BY STAGE

January 1, 1998 – December 31, 2008



## Median Pre-Money Valuations (US\$ millions)

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Seed Round	\$2.8	\$4.0	\$4.8	\$3.4	\$2.7	\$2.3	\$1.5	\$1.8	\$2.5	\$2.0	\$2.8
First Round	\$6.8	\$9.8	\$12.0	\$8.0	\$5.6	\$4.5	\$5.5	\$5.8	\$6.1	\$7.3	\$6.3
Second Round	\$19.7	\$30.0	\$40.0	\$17.1	\$12.6	\$13.1	\$12.0	\$14.3	\$16.2	\$16.1	\$18.0
Later Stage	\$36.3	\$65.0	\$92.5	\$40.0	\$24.5	\$21.6	\$31.9	\$37.0	\$40.0	\$41.4	\$58.3
Overall	\$15.0	\$21.1	\$25.0	\$16.2	\$11.0	\$10.4	\$13.0	\$14.7	\$18.3	\$15.0	\$23.0

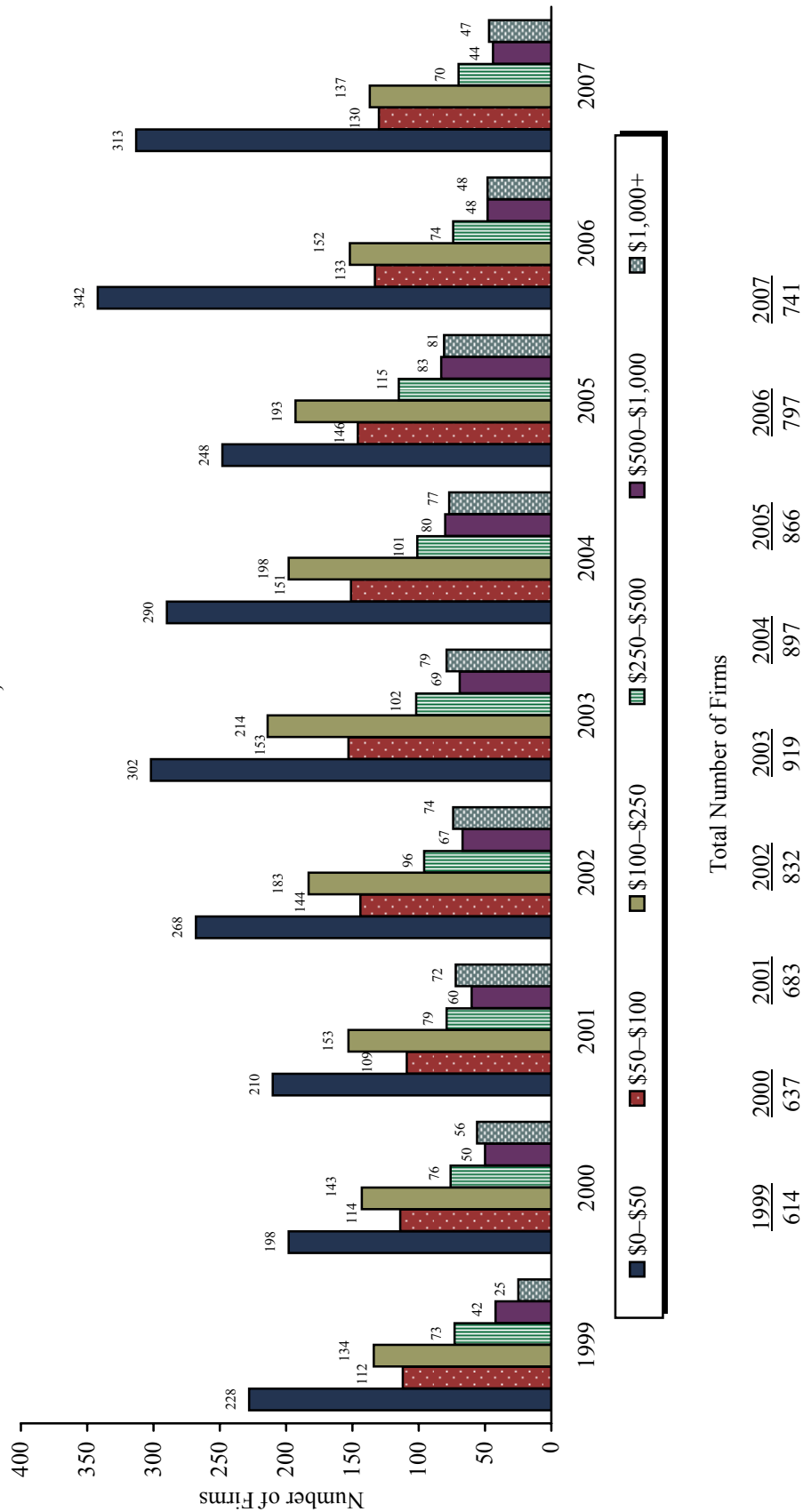
Source: VentureOne Corporation.

Notes: Data prior to 1998 are not available. Data were accessed on February 9, 2009.

Exhibit 10

NUMBER OF VENTURE CAPITAL FIRMS BY AMOUNT OF CAPITAL UNDER MANAGEMENT

As of December 31, 2007



Total Number of Firms

Year	2000	2001	2002	2003	2004	2005	2006	2007
Total Number of Firms	614	637	683	832	897	866	797	741

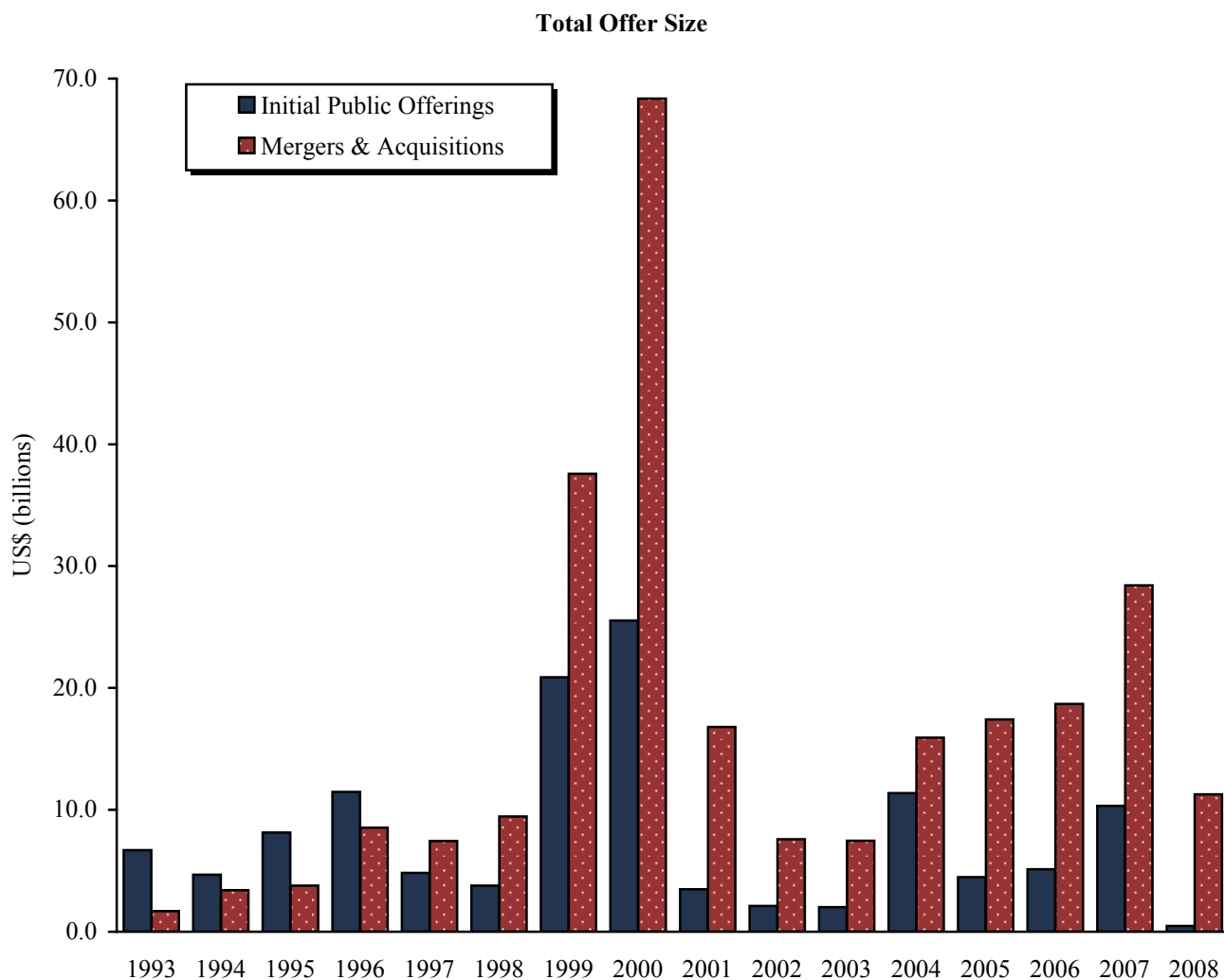
Sources: National Venture Capital Association and Thomson Venture Economics.

Note: Capital under management is shown in US\$ millions.

## Exhibit 11

**DOLLAR VALUE OF VENTURE-BACKED INITIAL PUBLIC OFFERINGS  
AND MERGERS & ACQUISITIONS**

**January 1, 1993 – September 30, 2008**



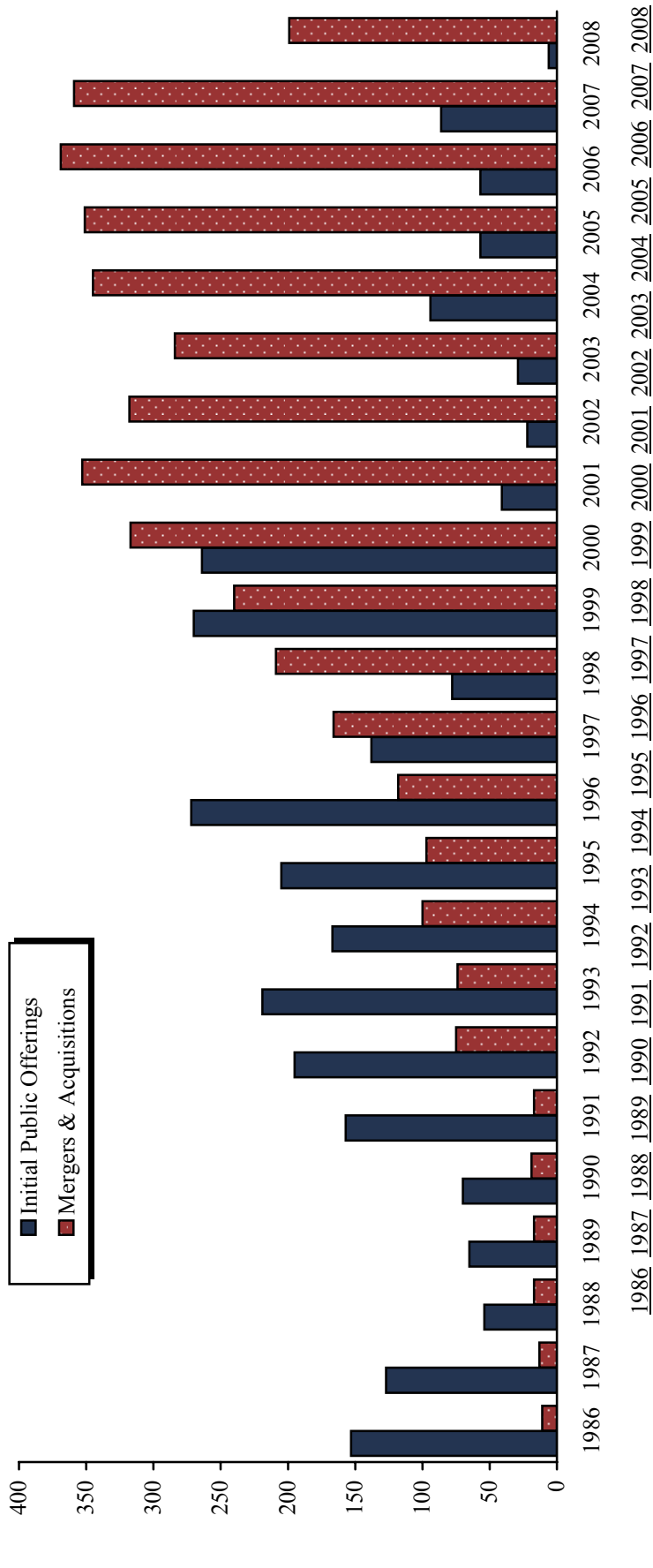
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Venture-Backed Initial Public Offerings	6.7	4.7	8.1	11.5	4.8	3.8	20.9	25.5	3.5	2.1	2.0	11.4	4.5	5.1	10.3	0.5
Mergers & Acquisitions of Venture-Backed Companies	1.7	3.4	3.8	8.5	7.4	9.4	37.6	68.4	16.8	7.6	7.5	15.9	17.4	18.7	28.4	11.3

Sources: National Venture Capital Association and PricewaterhouseCoopers.

Exhibit 12

NUMBER OF VENTURE-BACKED INITIAL PUBLIC OFFERINGS AND MERGERS & ACQUISITIONS

January 1, 1986 – September 30, 2008



Venture-Backed

Initial Public Offerings

Mergers & Acquisitions of

Venture-Backed Companies

Sources: National Venture Capital Association and PricewaterhouseCoopers.



## Exhibit 13

## NUMBER OF INITIAL PUBLIC OFFERINGS OF VENTURE-BACKED COMPANIES

1992–2007

## Number of Total IPOs by Industry

Industry Group	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Biotechnology	28	24	13	17	31	22	6	6	48	4	4	7	25	14	17	21
Business/Financial	12	10	13	11	22	6	3	24	10	2	2	6	10	7	2	3
Communications	20	25	25	20	28	15	14	64	57	2	0	2	9	4	7	14
Computer Hardware & Services	17	16	11	15	23	10	8	31	23	0	2	0	3	2	2	5
Consumer Products & Services	11	12	5	9	8	6	7	7	4	4	1	3	3	1	1	2
Health Care–Related	42	24	27	29	50	20	8	9	18	14	4	2	16	9	10	12
Industrial/Energy	21	26	22	15	22	10	3	1	10	6	1	0	2	1	3	4
Retailing & Media	14	29	12	7	21	13	9	50	21	0	3	2	11	5	7	5
Semiconductors & Electronics	9	28	17	26	9	8	1	6	18	3	1	3	6	7	2	8
Software	19	26	17	54	59	26	19	68	54	5	4	4	8	6	6	12
Total	193	220	162	203	273	136	78	266	263	40	22	29	93	56	57	86

Source: National Venture Capital Association.

Notes: The "health care–related" group includes health care products, medical diagnostics, surgical equipment, and health care services. The venture-backed initial public offerings (IPOs) considered in this sector breakdown include any company that participates in a venture round of financing, but this financing can be exited at some point before the IPO. The maximum value for each year is in bold.

## Exhibit 14

## NUMBER OF VENTURE CAPITAL ACQUISITIONS BY INDUSTRY

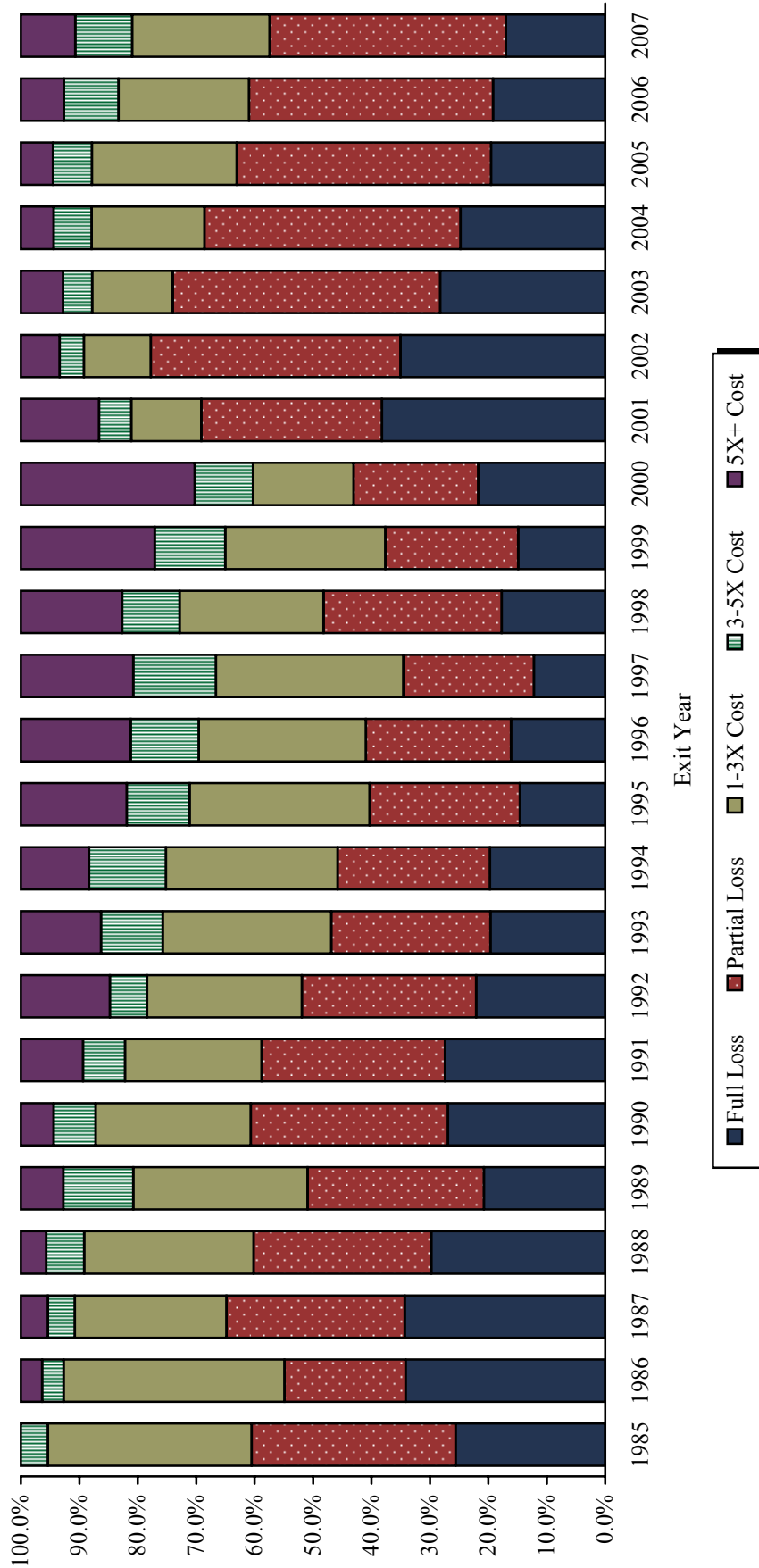
## 1992-2007

<u>Industry Group</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>
Biotechnology	6	3	5	9	11	10	12	13	15	16	11	14	23	25	30	19
Business/Financial	7	6	4	4	8	8	13	21	22	37	28	24	24	18	30	32
Communications	4	12	15	12	20	17	26	40	51	48	52	48	49	48	52	46
Computer Hardware & Services	11	10	6	8	16	16	23	24	25	33	34	36	36	30	26	28
Consumer Products & Services	2	3	2	1	8	9	7	10	12	14	5	6	5	5	4	4
Health Care-Related	<b>17</b>	4	17	18	11	20	24	16	17	23	23	14	27	39	26	25
Industrial/Energy	8	6	12	8	6	14	19	19	11	13	9	7	8	12	7	18
Retailing & Media	3	8	4	5	11	19	11	28	45	58	25	22	33	28	31	40
Semiconductors & Electronics	5	5	5	6	5	8	13	10	21	22	15	15	19	14	20	14
Software	12	<b>17</b>	<b>30</b>	<b>26</b>	<b>22</b>	<b>45</b>	<b>61</b>	<b>59</b>	<b>96</b>	<b>88</b>	<b>116</b>	<b>107</b>	<b>115</b>	<b>126</b>	<b>135</b>	<b>115</b>
Other	0	0	0	0	0	0	0	0	2	1	0	0	1	1	0	1
Total	75	74	100	97	118	166	209	240	317	353	318	293	340	346	361	342

Source: National Venture Capital Association.

Notes: The "health care-related" group includes health care products, medical diagnostics, surgical equipment, and health care services. The maximum value for each year is in bold.

**Exhibit 15**  
**U.S. VENTURE CAPITAL:**  
**REALIZED COMPANY LEVEL INVESTMENT MULTIPLE ANALYSIS (GROSS) BY YEAR OF EXIT**  
**1985-2007**

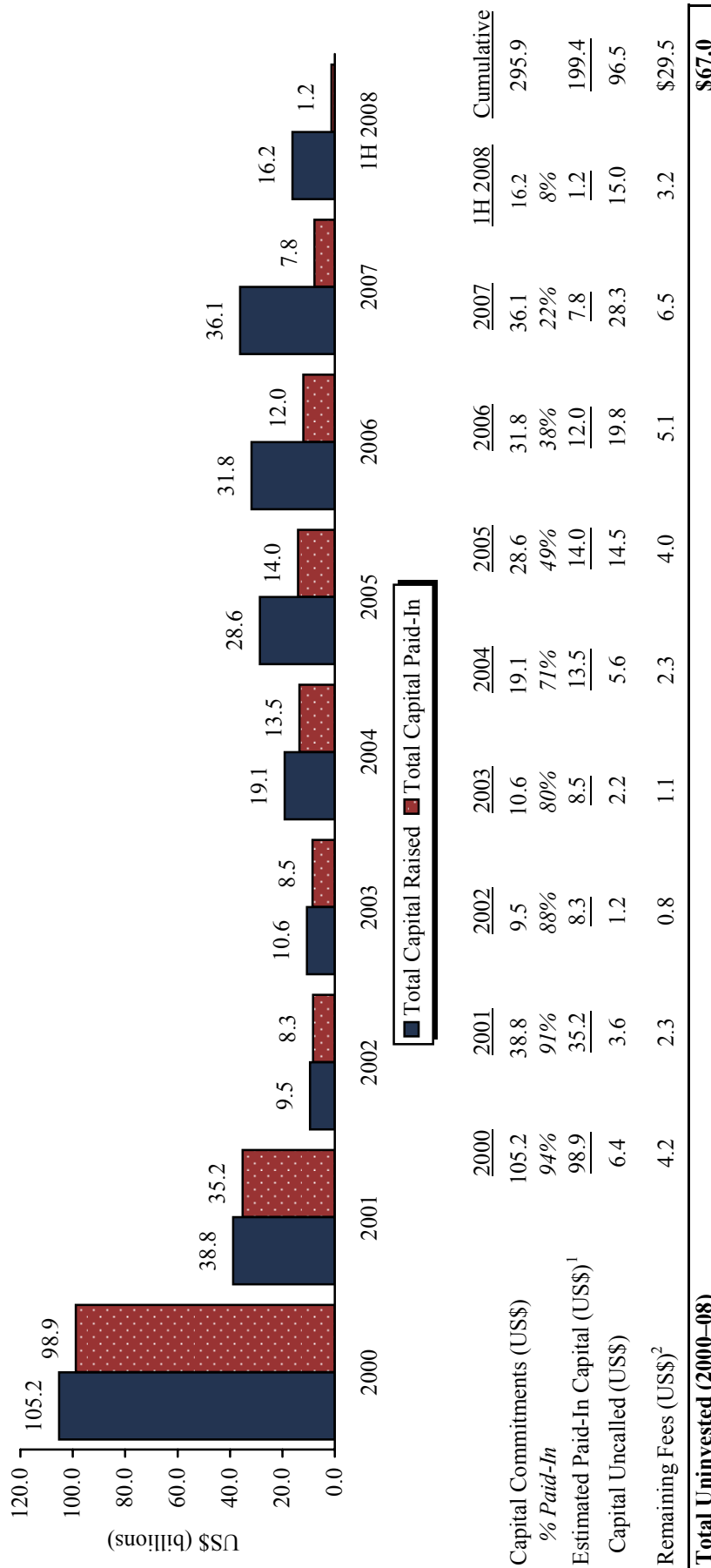


Source: Cambridge Associates LLC Non-Marketable Alternative Assets Database.

Exhibit 16

U.S. VENTURE CAPITAL TEN-YEAR CAPITAL UTILIZATION

As of June 30, 2008

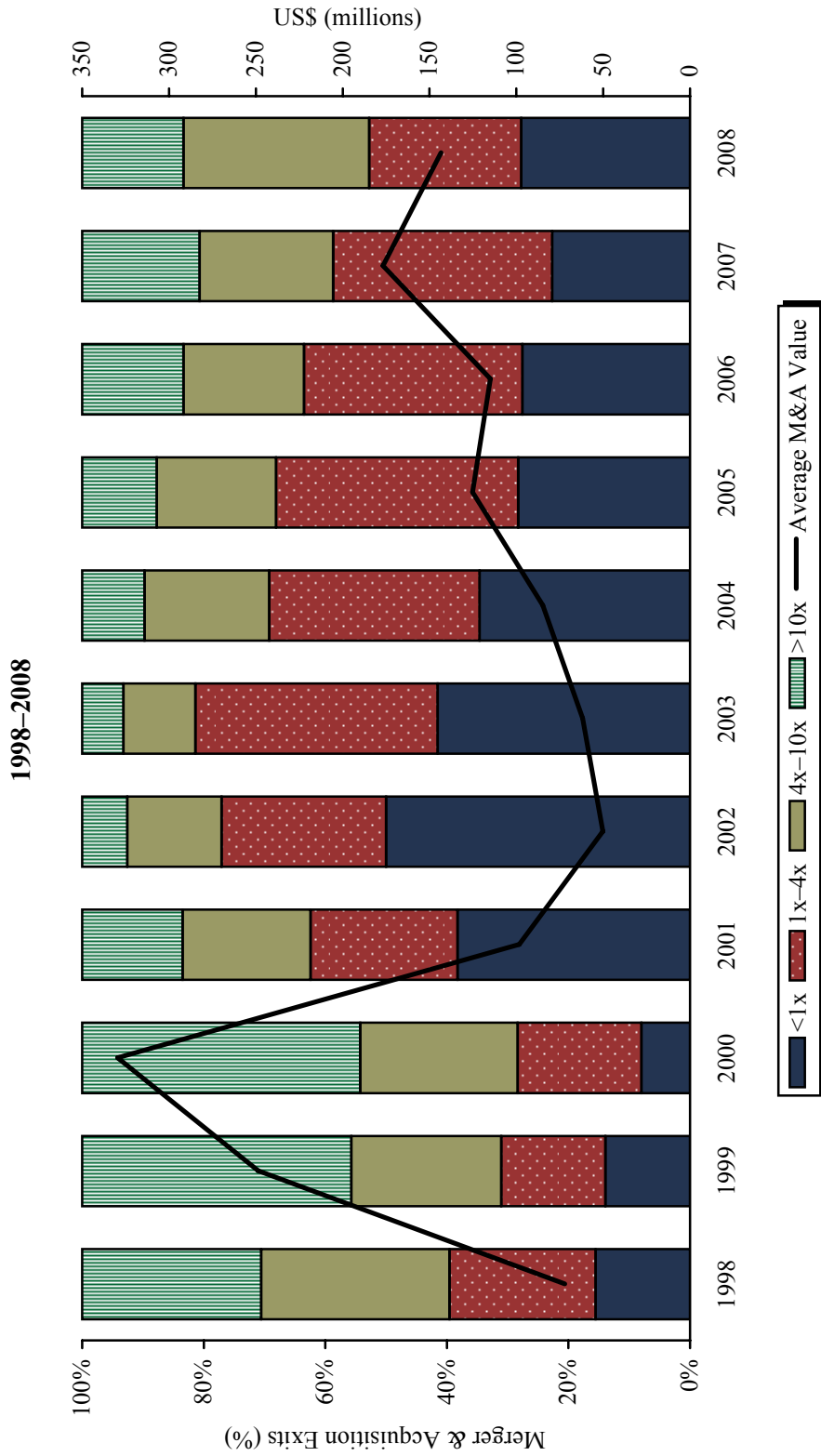


Sources: Cambridge Associates LLC Non-Marketable Alternative Assets Database and National Venture Capital Association.

<sup>1</sup> Estimate based on the percent paid-in by funds tracked by Cambridge Associates LLC in each vintage year.

<sup>2</sup> Assumes a 2.0% management fee based on committed capital over ten years and assumes no recycling (re-investment) of capital.

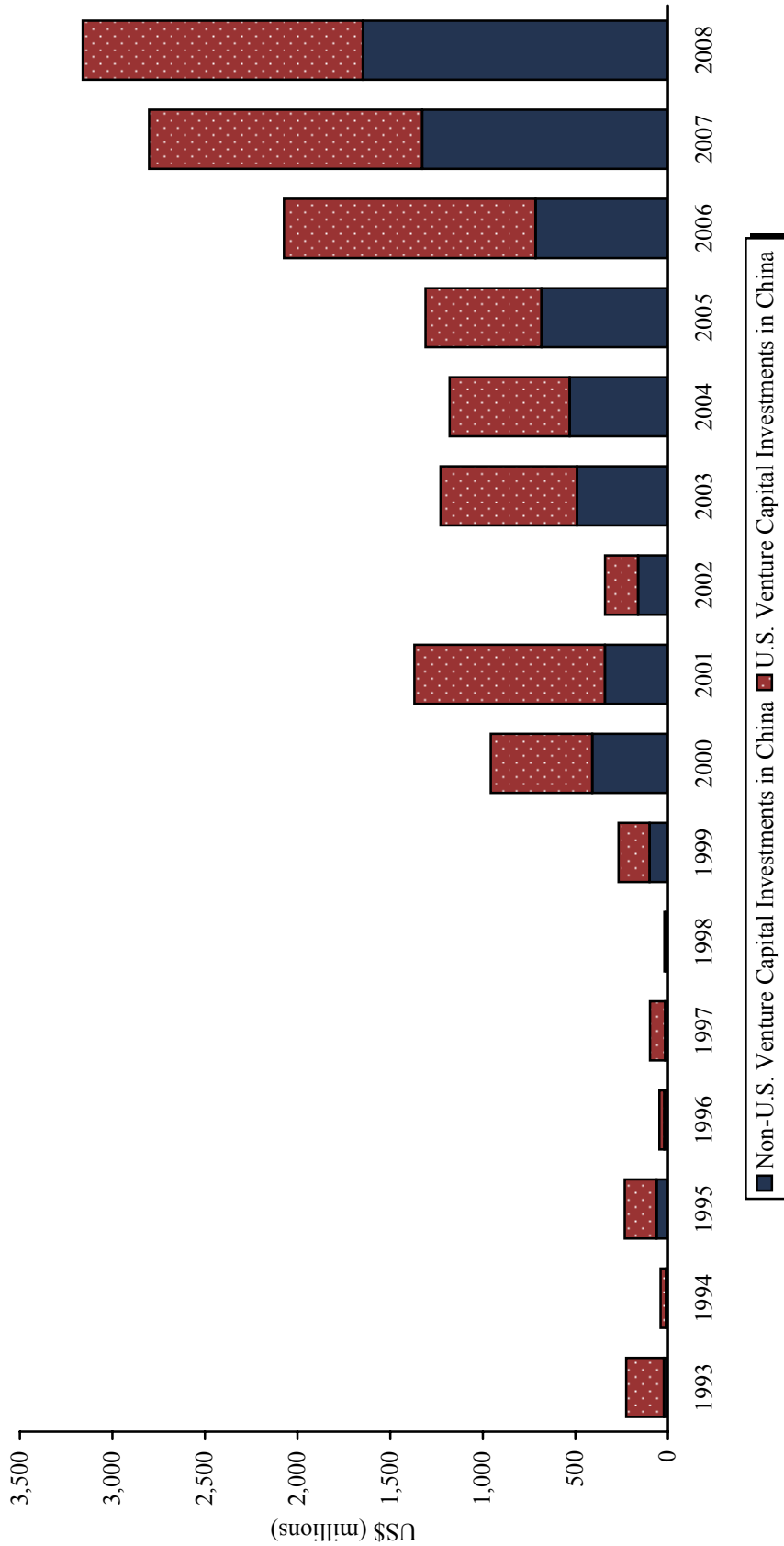
**Exhibit 17**  
**RELATIONSHIP BETWEEN TRANSACTION VALUES AND**  
**CUMULATIVE TOTAL VENTURE INVESTMENT**



Sources: National Venture Capital Association and Thomson Reuters.

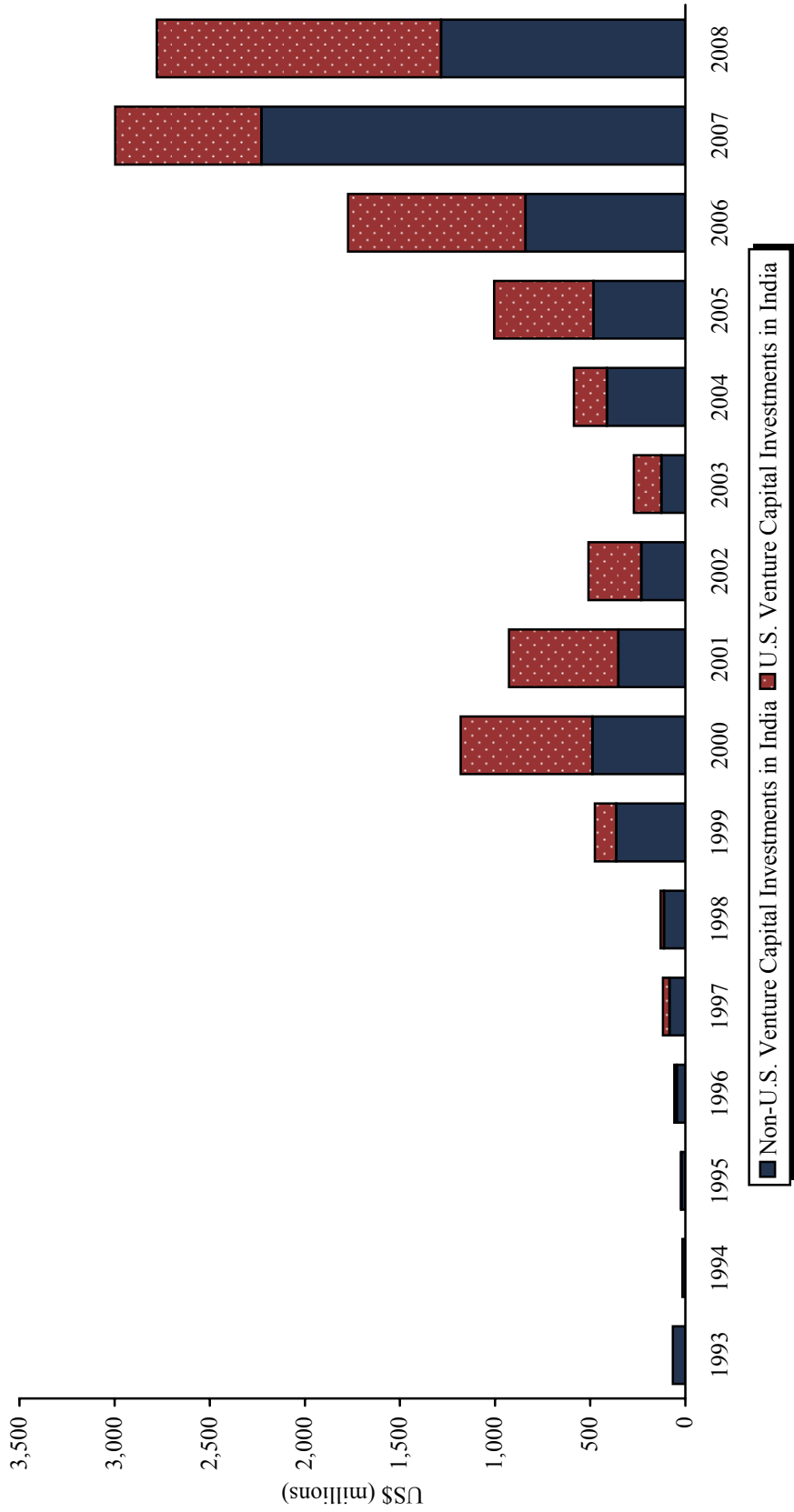
Note: Data for 2008 are through September 30.

**Exhibit 18**  
**VENTURE CAPITAL INVESTMENTS IN CHINA**  
**January 1, 1993 – November 10, 2008**



Source: Thomson Reuters.

**Exhibit 19**  
**VENTURE CAPITAL INVESTMENTS IN INDIA**  
**January 1, 1993 – November 10, 2008**

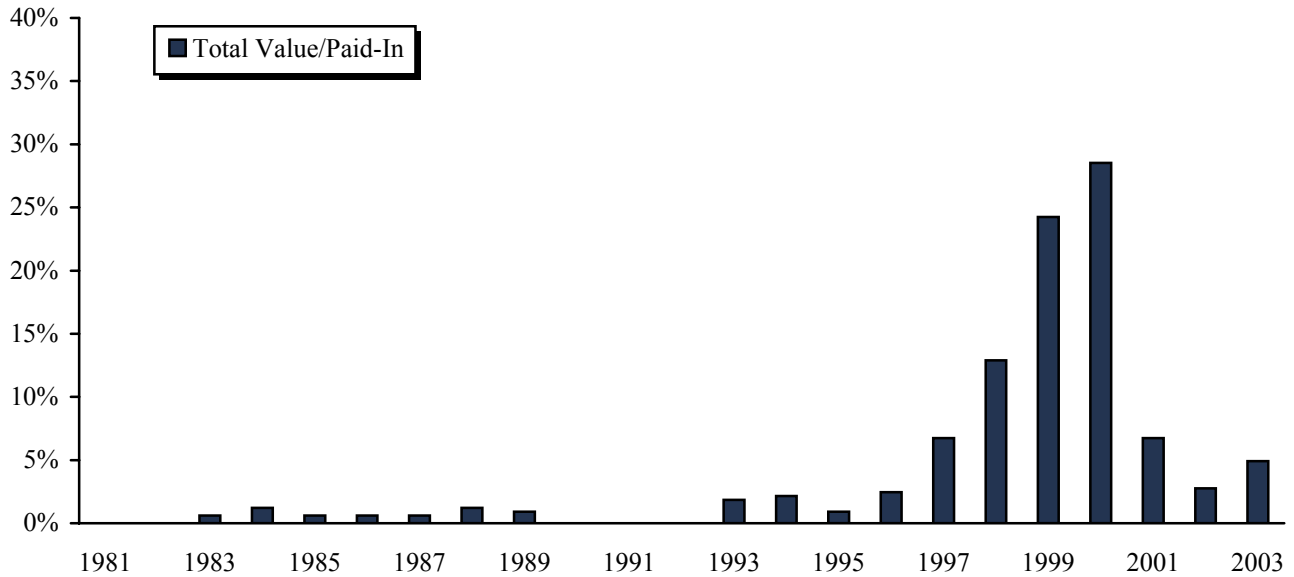


Source: Thomson Reuters.

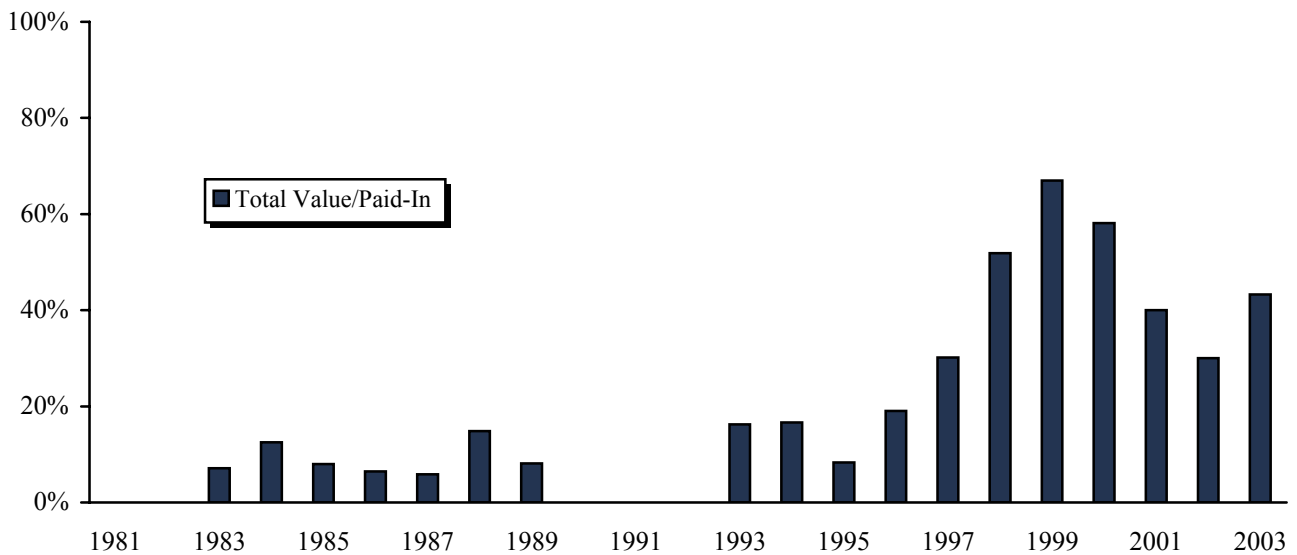
**Exhibit 20**

**FUNDS RETURNING LESS THAN 1 TIMES PAID-IN CAPITAL**

**Concentration of Funds**



**Percentage of Funds by Vintage Year**

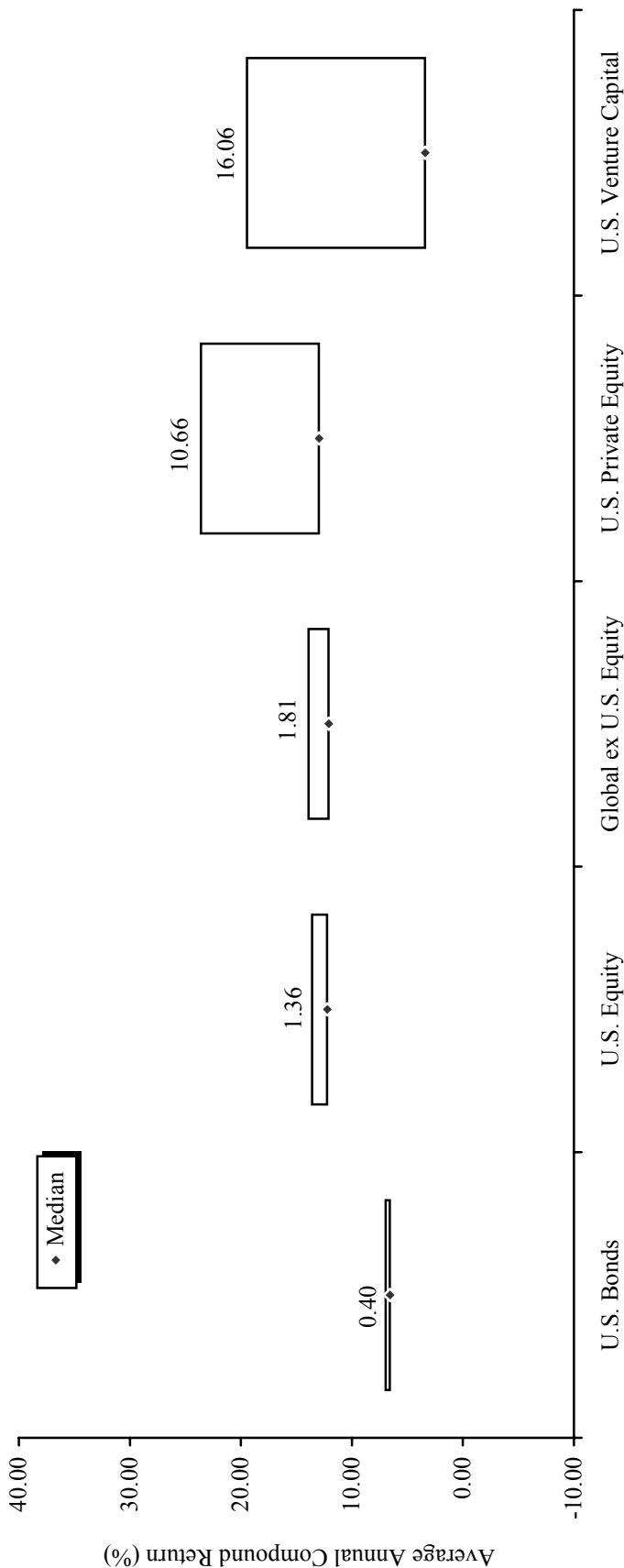


Source: Cambridge Associates LLC.

Note: This statistic is not meaningful for vintage-year funds 2004 and later.



**Exhibit 21**  
**COMPARATIVE ASSET CLASS MANAGER RETURNS**  
**1993–2007**  
**US\$-Denominated Returns**

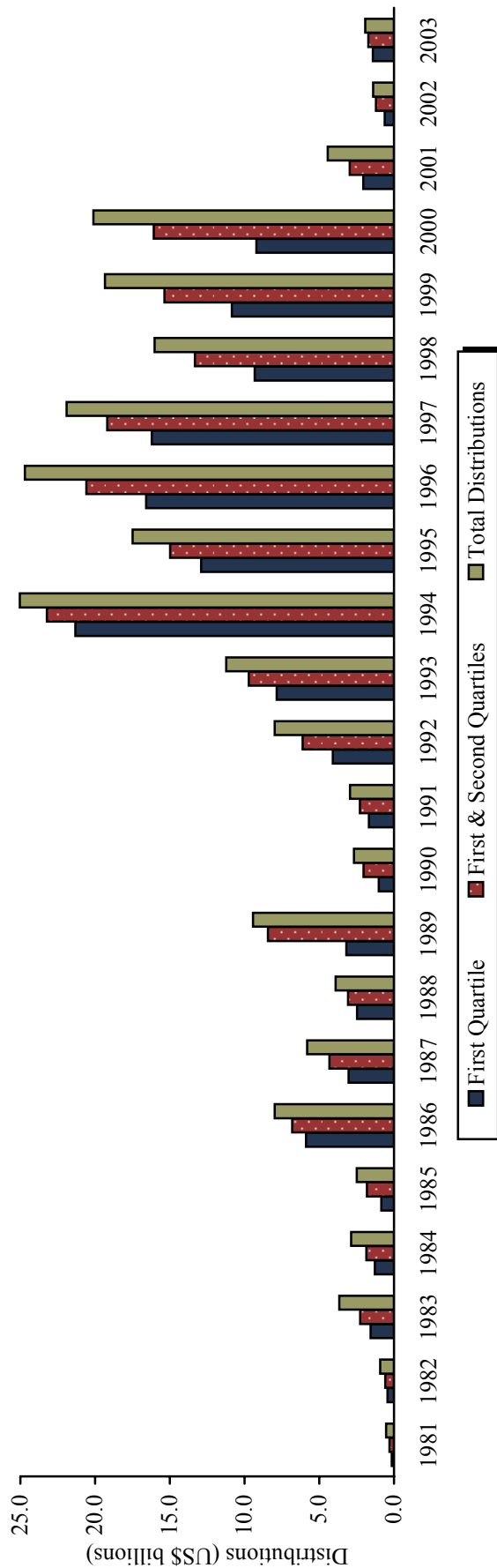


Sources: Cambridge Associates LLC Investment Manager Database and Cambridge Associates LLC Non-Marketable Alternative Assets Database.

Notes: This graph shows the difference in average annual compound return between the top quartile (i.e., 25th percentile) and the median (i.e., 50th percentile) managers for each asset class. U.S. venture capital and U.S. private equity returns represent (net internal rates of return net to limited partners) the median and top quartile of mature funds (vintage years 1993 through 2002). U.S. private equity and U.S. venture capital data are from the Cambridge Associates LLC U.S. Private Equity Index® and Benchmark Statistics and Cambridge Associates LLC U.S. Venture Capital Index® and Benchmark Statistics as of year-end 2007. Data are based on managers with a minimum of \$50 million in assets.

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**Exhibit 22**  
**CONCENTRATION OF DISTRIBUTIONS BY VINTAGE-YEAR FUNDS**  
**1981–2003**  
**As of June 30, 2008**



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Number of Funds	16	18	24	37	42	36	42	73	81	118	160	55	30	37
First Quartile Distributions (US\$ billions)	1.0	1.7	4.1	7.9	21.3	12.9	16.6	16.2	9.3	10.8	9.2	2.1	0.6	1.4
First Quartile Distributions (%)	37.8	57.2	51.2	69.9	85.2	73.8	67.1	74.0	58.2	56.1	45.8	46.4	44.1	73.2
First & Second Quartiles Distributions (US\$ billions)	2.0	2.3	6.1	9.7	23.2	15.0	20.6	19.2	13.3	15.4	16.1	3.0	1.2	1.7
First & Second Quartiles Distributions (%)	76.0	77.6	76.5	86.5	92.8	85.7	83.4	87.7	83.2	79.4	79.9	66.8	86.1	89.4
Total Distributions (US\$ billions)	2.7	2.9	8.0	11.2	25.0	17.5	24.7	21.9	16.0	19.3	20.1	4.4	1.4	1.9

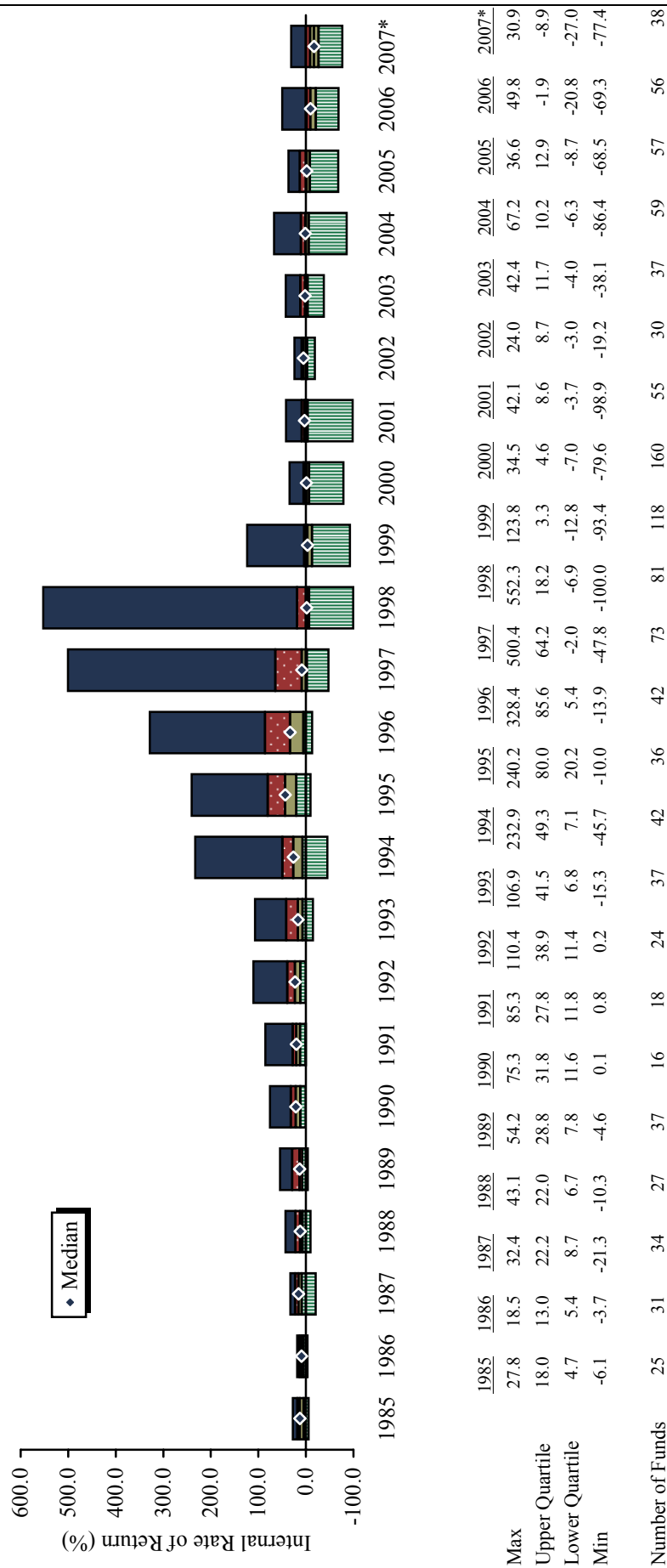
Source: Cambridge Associates LLC Non-Marketable Alternative Assets Database.

Exhibit 23

INTERNAL RATES OF RETURN (%) NET TO LIMITED PARTNERS OF VENTURE CAPITAL FIRMS BY QUANTILES

Vintage Years 1985–2007

As of June 30, 2008



Source: Cambridge Associates LLC Non-Marketable Alternative Assets Database.

Note: These internal rates of return have been compiled from 1,133 domestic venture capital funds with inception from 1985 through 2007 and are net of management fees, expenses, and carried interest.

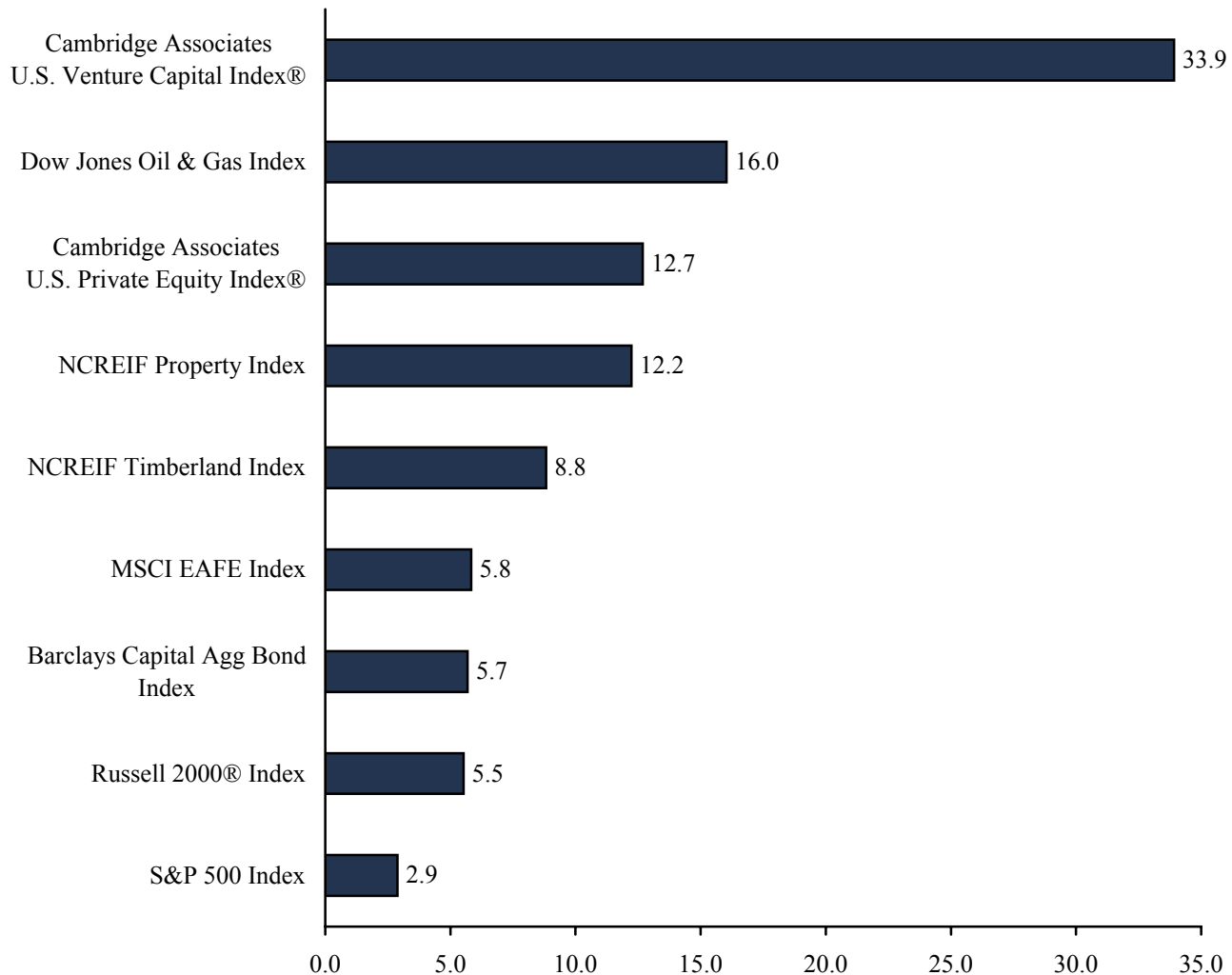
\* Most of these funds are too young to have produced meaningful returns. Analysis and comparison of partnership returns to these benchmark statistics may be irrelevant.

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## Exhibit 24

## TOTAL MARKET RETURNS

Ten Years Ended June 30, 2008



Sources: Barclays Capital, Cambridge Associates LLC U.S. Private Equity Index®, Cambridge Associates LLC U.S. Venture Capital Index®, Dow Jones Oil & Gas Index, Frank Russell Company, MSCI Inc., Nasdaq, and Standard & Poor's. MSCI data provided "as is" without any express or implied warranties.

Notes: Returns are end-to-end pooled means net of management fees, expenses, and carried interest. The pooled means represent the end-to-end rates of return calculated on the aggregate of all cash flows and beginning and ending market values as reported by the general partners to Cambridge Associates LLC in their quarterly and annual audited financial reports. The U.S. venture capital sample represents over 80% of the total dollars raised by U.S. venture capital managers between 1981 and 2008. The U.S. private equity sample represents over 70% of the total dollars raised by funds formed between 1987 and 2008. U.S. private equity includes buyout, private equity energy, growth equity, and mezzanine funds. Returns for these indices are as of June 30, 2008.