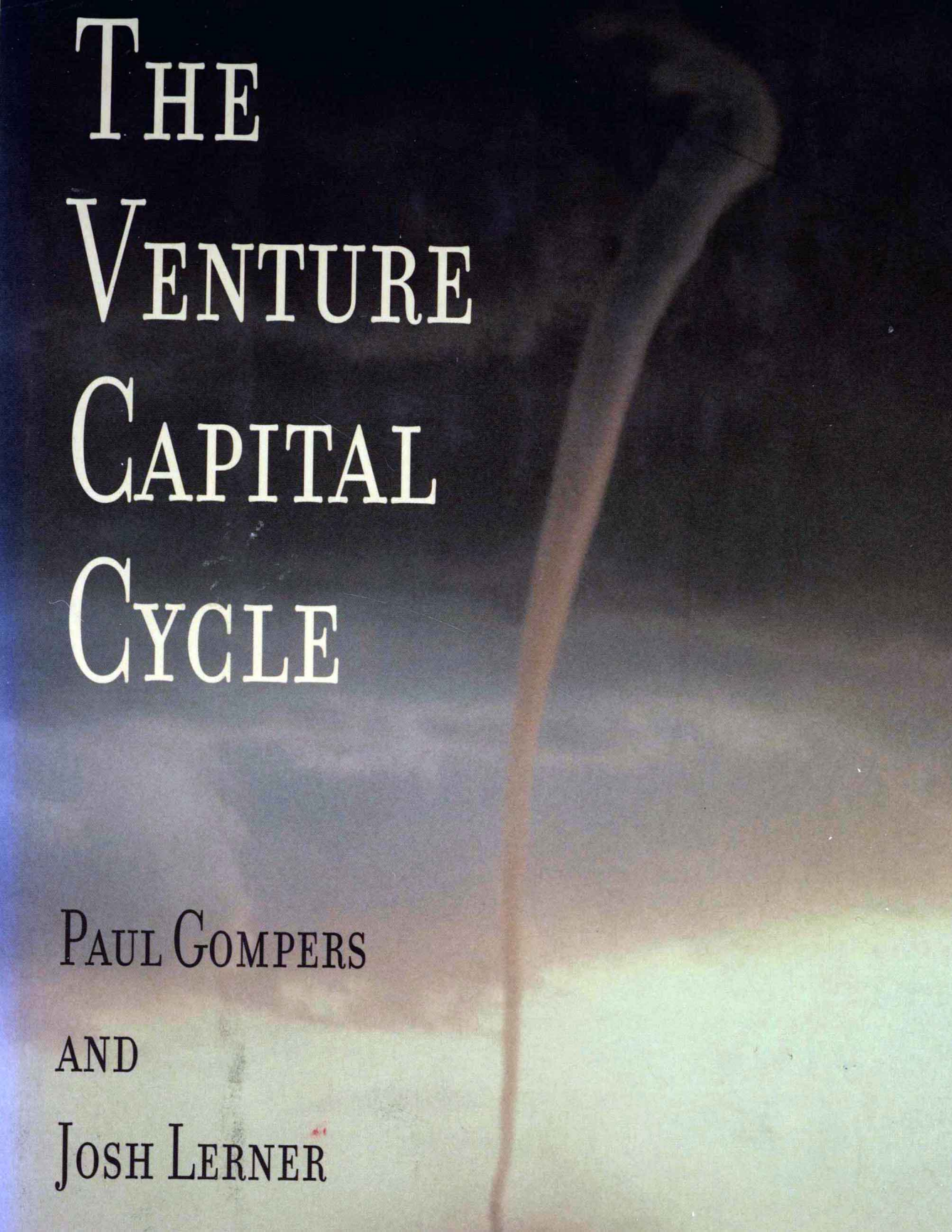
The Venture Capital Cycle



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The Venture Capital Cycle

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Chapter 3: Paul A. Gompers and Josh Lerner, "The Use of Covenants: An Analysis of Venture Partnership Agreements," *Journal of Law and Economics* 39 (October 1996): 463–498.

Chapter 4: Paul A. Gompers and Josh Lerner, "An Analysis of Compensation in the U.S. Venture Capital Partnership," *Journal of Financial Economics* 51 (January 1999): 3–44.

Chapter 5: Paul A. Gompers and Josh Lerner, "The Determinants of Corporate Venture Capital Success: Organizational Structure, Incentives, and Complementarities," in Randall Morck, editor, *Concentrated Corporate Ownership* (Chicago: University of Chicago Press for the National Bureau of Economic Research, 1999), forthcoming.

Chapter 7: Paul A. Gompers, "Optimal Investment, Monitoring, and the Staging of Venture Capital," *Journal of Finance* 50 (December 1995): 1461–1490.

Chapter 8: Josh Lerner, "Venture Capitalists and the Oversight of Private Firms," *Journal of Finance* 50 (March 1995): 301–318.

Chapter 9: Josh Lerner, "The Syndication of Venture Capital Investments," *Financial Management* 23 (Autumn 1994): 16–27.

Chapter 11: Josh Lerner, "Venture Capitalists and the Decision to Go Public," *Journal of Financial Economics* 35 (June 1994): 293–316.

Chapter 12: Paul A. Gompers, "Grandstanding in the Venture Capital Industry," *Journal of Financial Economics* 43 (September 1996): 133–156.

Chapter 13: Paul A. Gompers and Josh Lerner, "Venture Capital Distributions: Short-Run and Long-Run Reactions," *Journal of Finance* 53 (December 1998): 2161–2183.

Chapter 14: Alon Brav and Paul A. Gompers, "Myth or Reality? The Long-Run Underperformance of Initial Public Offerings: Evidence from Venture Capital and Nonventure Capital-Backed Companies," *Journal of Finance* 52 (December 1997): 1791–1822.

Contents

1 Introduction

Why This Volume?

Over the past two decades, the venture capital industry in the United States has experienced dramatic growth. Annual inflows into venture funds have expanded from virtually zero in the mid-1970s to $17.2 billion in 1998. Disbursements by these funds into portfolio companies have displayed almost as great a growth. Many of the most visible new firms over the past decades—including Apple Computer, Genentech, Intel, Lotus, and Microsoft—have been backed by venture capital funds. This growth has led to increasing attention to the venture capital industry from the popular press, executives of major corporations, and policymakers worldwide.

Yet despite this recent attention, misconceptions persist about the nature and role of venture capitalists. One claim, frequently encountered in guides for entrepreneurs, is that venture capitalists are purely passive financiers of entrepreneurial firms who are unlikely to add much value. An extreme, though not unrepresentative, example is Manweller's (1997) *Funding High-Tech Ventures.* In a chapter entitled "Venture Capitalists: The Companynappers," the author observes:

> The term Venture Capitalists (V/C) is an oxymoron. It should be U/Bs (Unadventurous Brokers), especially in hard times. V/Cs today prefer to invest in products which are being developed by sedate, well entrenched companies. If that's your company, V/Cs are a good source to approach for additional equity funding.... [The V/Cs] have developed personality traits more akin to professional wrestlers than professional investors. If you've got the time, try it. You'll get a real education in how to string along future vendors.

Another common misperception relates to how venture capitalists unwind their holdings in young firms. As discussed later in the volume, the exiting of venture capital investments is a controversial area, and venture

funds have been known to behave in opportunistic ways. But the discussion of this process is often extremely one-sided and not representative of the broader historical record. A recent discussion in the *Washington Post* (Sloan 1997) is representative:

> Venture capitalists ... take a company public while the ink is still drying on its incorporation papers. Venture capitalists would rather have you risk your money than risk their own. Besides, going public lets them profit now, rather than waiting.

Distorted perceptions about the venture capital industry are commonplace among policymakers. One of many examples is Dr. Mary Good, Undersecretary of Commerce for Technology, commenting before the U.S. Senate Governmental Affairs Committee (1997):

> As the competitive pressures of the global marketplace have forced American firms to move more of their R&D into shorter term product and process improvements, an "innovation gap" has developed.... Sit down with a group of venture capitalists. The funding for higher-risk ventures ... is extraordinarily difficult to come by.

More disturbing than these accounts, however, have been the actions taken by entrepreneurs, corporations, and academic institutions based on misconceptions about the venture capital industry. Particularly misguided is the belief that venture capitalists can add little value to young firms aside from money or can be easily duplicated by an institution whose core strengths are very different. These misconceptions have often led to a failure to capitalize on attractive opportunities and to the substantial destruction of value.

One example that illustrates this point is an instance where a university sought to duplicate the role of venture capitalists, with few of the venture funds' checks and balances and little understanding of the potential pitfalls. In 1987, Boston University invested in a privately held biotechnology company founded in 1979 by a number of scientists affiliated with the institution. As part of its initial investment, the school bought out the stakes of a number of independent venture capital investors, who had apparently concluded after a number of financing rounds that the firm's prospects were unattractive. Between 1987 and 1992, the school, investing alongside university officials and trustees, provided at least $90 million to the private firm. (By way of comparison, the school's entire endowment in the fiscal year in which it initiated this investment was $142 million.) Although the company succeeded in completing an initial public

offering, it encountered a series of disappointments with its products. At the end of 1997, the university's equity stake was worth only $4 million.[1]

These misconceptions have motivated us to undertake this volume, which draws together our recent research into the form and function of venture capital funds.[2] We have two goals. First, we seek to gather our research efforts into a more accessible volume than the various finance and economics journals in which they originally appeared. Second, we want to draw out some of the common themes in these studies with a series of interpretative essays about venture capital fundraising, investing, and exiting.

Three key themes run throughout this volume. The first is the tremendous incentive and information problems that venture capitalists must overcome. Venture investors typically concentrate in industries with a great deal of uncertainty, where the information gaps among entrepreneurs and investors are commonplace. These firms typically have substantial intangible assets, which are difficult to value and may be impossible to resell if the firm fails. Similarly, market conditions in many of these industries are highly variable. The nature and magnitude of the information gaps and uncertainty at each stage of the cycle leave many opportunities for self-interested behavior by the various parties. At each stage of the cycle, the venture capital industry has developed novel checks and balances, ensuring that incentives are properly aligned and increasing the probability of success.

The second theme is the interrelatedness of each aspect of the venture capital process. Venture capital can be viewed as a cycle that starts with the raising of a venture fund; proceeds through the investing in, monitoring of, and adding value to firms; continues as the venture capitalist exits successful deals and returns capital to their investors; and renews itself

1. This account is based on Seragen's filings with the U.S. Securities and Exchange Commission. In a 1992 agreement with the State of Massachusetts' Attorney General's Office, the university agreed not to make any further equity investments. The school, however, made a $12 million loan guarantee in 1995 (subsequently converted into equity) and a $5 million payment as part of an asset purchase in 1997. The firm was merged in 1998 into a subsidiary of another biotechnology company. Even if all the contingent payments associated with the transaction are made, the university will have received far less than the amount it invested.

2. The distinction between venture capital and private equity funds is not precise. Private equity funds include funds devoted to venture capital, leveraged buyouts, consolidations, mezzanine and distressed debt investments, and a variety of hybrids such as venture leasing and venture factoring. Venture capital funds are those primarily devoted to equity or equity-linked investments in young growth-oriented firms. Many venture capital funds, however, occasionally make other types of private equity investments.

with the venture capitalist raising additional funds. To understand the venture capital industry, one must understand the whole "venture cycle." The organization of this volume mirrors this cycle. Each part will highlight the interrelated nature of the various aspects of the cycle.

A final theme is how slowly the venture capital industry adjusts to shifts in the supply of capital or the demand for financing. Academics are used to thinking that financial markets instantaneously adjust to the arrival of new information. This does not appear to be true in the venture capital market, where regulatory and policy shifts generate disruptions that take years to resolve. Put another way, long-run adjustments in supply and demand curves can be very slow to respond to short-run shocks.

The nature of venture-backed companies contributes to this slow adjustment. Because venture funds must make long-run illiquid investments in firms, they need to secure funds from their investors for periods of a decade or more. The supply of venture capital consequently can not adjust quickly to changes in investment opportunities, as is the case in mutual or hedge funds. More generally, even identifying which sectors or groups are likely to be receiving too much or too little investment is often difficult. The supply of venture capitalists is also difficult to adjust in the short run. Not only is it difficult to raise a new venture capital fund without a track record, but the skills needed for successful venture capital investing are difficult and time-consuming to acquire.[3] During periods when the supply of or demand for venture capital has shifted, adjustments in the number of venture capitalists and venture capital organizations appear to take place very slowly.

The Nature and History of Venture Capital

Before turning to a discussion of venture capital fundraising, it is helpful to review the nature and history of the venture capital industry. Venture capitalists' role is an old one. Entrepreneurs have long had ideas that require substantial capital to implement but lacked the funds to finance these projects themselves. While many entrepreneurs have used bank

3. Practitioner accounts emphasize that venture capitalists have highly specialized skills, which are difficult to develop or even identify. For instance, Robert Kunze (1990) of Hambrecht and Quist notes: "The life of the associate [in a venture capital organization] is akin to playing house. Since associates never make the actual investment decision ... it's impossible to tell whether or not they'll be successful venture capitalists if and when they get the chance."

loans or other sources of debt financing, start-up companies that lacked substantial tangible assets, expected several years of negative earnings, and had uncertain prospects have often been forced to struggle to find alternatives. Solutions to this problem date back at least as far as Babylonian partnerships at the time of Hammurabi (Lutz 1932). Venture capitalists represent one solution to financing these high-risk, potentially high-reward projects.

The venture capital industry today is a well established, if modestly sized, industry. The industry consists of several thousand professionals, working at about 500 funds concentrated in California, Massachusetts, and a handful of other states. These individuals undertake a variety of roles. The first is maintaining relationships with investors—primarily institutions such as pension funds and university endowments, but also wealthy individuals—who provide them with capital. Venture capitalists typically raise their capital not on a continual basis, but rather through periodic funds. These funds, which are often in the form of limited partnerships, typically have a ten-year life, though extensions of several years are often possible. Eventually, however, the funds must be returned to the investors, and a new fund raised. A venture organization usually will raise a fund every two-to-five years. Taken collectively, the venture industry today is managing funds with a total capital, including capital that the investors have promised to provide, even if it is not all drawn down, of about $50 billion.

Venture capitalists play a second role in the review of proposed investments, and the oversight of those that are selected for investment. The typical venture organization receives many dozens of business plans for each one it funds. Although most proposals are swiftly discarded, serious candidates are extensively scrutinized through both formal studies of the technology and market strategy and informal assessment of the management team. (It is not unusual for a venture team to complete 100 or more reference checks before deciding to invest in a firm.) The decision to invest is frequently made conditional on the identification of a syndication partner who agrees that this is an attractive investment.

Once the decision to invest is made, venture capitalists frequently disburse funds in stages. Managers of these venture-backed firms are forced to return repeatedly to their financiers for additional capital to ensure that the money is not squandered on unprofitable projects. In addition, venture capitalists intensively monitor managers. These investors demand preferred stock with numerous restrictive covenants and representation on the board of directors.

The final role of venture investors is managing the exiting of these investments. Typically, venture capitalists seek to take public the most successful firms in their portfolios. While a relatively modest fraction—historically, between 20 and 35 percent—of portfolio firms are taken public, they account for the bulk of the venture returns. Even among these offerings, often a small number of firms account for the bulk of the returns; the distribution is highly skewed. Other, less successful firms are liquidated, sold to corporate acquirers, or else remain operational at a modest level of activity.

Given the intensity of interest in replicating the U.S. venture model, it is easy to forget how young the formal venture industry is in this country. The first modern venture capital firm, American Research and Development (ARD), did not appear until after World War II. It was formed in 1946 by MIT President Karl Compton, Harvard Business School Professor Georges F. Doriot, and local business leaders who sought to commercialize the technologies developed for World War II, particularly innovations undertaken at MIT. The success of the investments ranged widely. Almost half of ARD's profits during its twenty-six years as an independent entity came from its $70,000 investment in Digital Equipment Company in 1957, which grew in value to $355 million. Because institutional investors were reluctant to invest, ARD was structured as a publicly traded closed-end fund and marketed mostly to individuals (Liles 1977).

A handful of other venture funds were established in the decade after ARD's formation. Most, like ARD, were structured as publicly traded closed-end funds (mutual funds whose shares must be sold to other investors, rather than redeemed from the issuing firm). The first venture capital limited partnership, Draper, Gaither, and Anderson, was formed in 1958. Imitators soon followed, but limited partnerships accounted for a minority of the venture pool during the 1960s and 1970s. The remainder of venture capital industry was either closed-end funds or small business investment companies (SBICs), federally guaranteed risk-capital pools that proliferated during the 1960s. The annual flow of money into new venture funds during these years never exceeded a few hundred million dollars and usually was much less.

As figure 1.1 shows, funds flowing into the venture capital industry increased dramatically during the late 1970s and early 1980s. The increase in new capital contributions outpaced growth in the number of active organizations, due to the rigidities that limit adjustments in the short-run supply of venture organizations and venture capitalists discussed above.

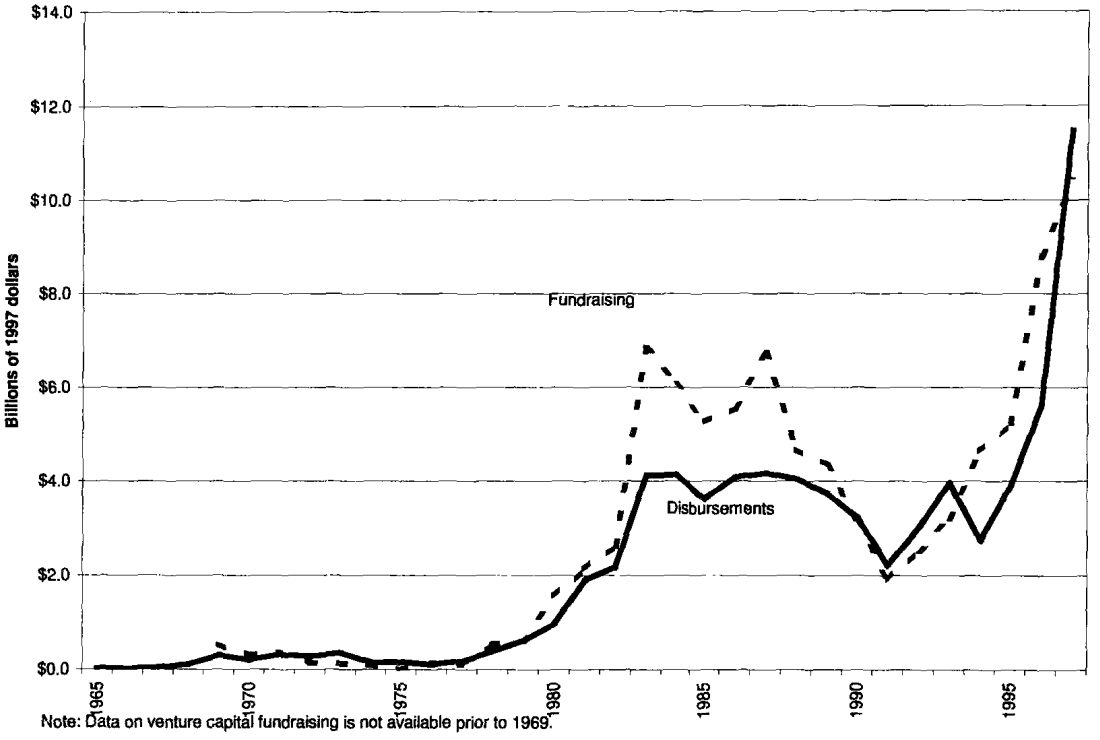

Figure 1.1
Venture capital fundraising and disbursements, 1965–1997.

An important contributing factor to the increase in money flowing into the venture capital sector was the 1979 amendment to the "prudent man" rule governing pension fund investments. Prior to that date, the Employee Retirement Income Security Act (ERISA) prohibited pension funds from investing substantial amounts of money in venture capital or other high-risk asset classes. The Department of Labor's clarification of the rule explicitly allowed pension managers to invest in high-risk assets, including venture capital. This rule change opened the door to pension funds' tremendous capital resources. Table 1.1 shows that in 1978, when $481 million was invested in new venture capital funds,[4] individuals accounted for the largest share (32 percent). Pension funds supplied just 15 percent. Eight years later, when more than $4.8 billion was invested, pension funds accounted for more than half of all contributions.

An associated change during the 1980s was the increasing role of investment advisors. During the late 1970s and early 1980s, almost all pension funds invested directly in venture funds. Because venture capital

4. The annual commitments represent pledges of capital to venture funds raised in a given year. This money is typically invested over three to five years starting in the year the fund is formed.

Table 1.1
Summary statistics for venture capital fundraising by independent venture partnerships. All dollar figures are in millions of 1997 dollars.

	1978	1979	1980	1981	1982	1983	1984	1985
First closing of funds								
Number of funds	23	27	57	81	98	147	150	99
Size (millions of 1997 $)	457	517	1,333	1,831	2,234	5,832	5,176	4,482
Sources of funds								
Private pension funds	15%	31%	30%	23%	33%	26%	25%	23%
Public pension funds	[a]	[a]	[a]	[a]	[a]	5%	9%	10%
Corporations	10%	17%	19%	17%	12%	12%	14%	12%
Individuals	32%	23%	16%	23%	21%	21%	15%	13%
Endowments	9%	10%	14%	12%	7%	8%	6%	8%
Insurance companies and banks	16%	4%	13%	15%	14%	12%	13%	11%
Foreign investors and other	18%	15%	8%	10%	13%	16%	18%	23%
Independent venture partnerships as a share of the total venture pool[b]			40%	44%	58%	68%	72%	73%

a. Public pension funds are included with private pension funds in these years.
b. This series is defined differently in different years. In some years, the *Venture Capital Journal* states that nonbank SBICs and publicly traded venture funds are included with independent venture partnerships. In other years, these funds are counted in other categories. It is not available after 1994.
Source: Compiled from the Venture Economics funds database and various issues of the *Venture Capital Journal*.

was a small portion of their portfolios, few resources were devoted to monitoring and evaluating these investments. During the mid-1980s, investment advisors (often referred to as "gatekeepers") entered the market to advise institutional investors about venture investments. The gatekeepers pooled resources from their clients, monitored the progress of existing investments, and evaluated potential new venture funds. By the 1990s, one-third of all pension fund commitments was made through an investment advisor, and one-fifth of all money raised by new funds came through an investment advisor.

A final change in the venture capital industry during this period was the rise of the limited partnership as the dominant organizational form, depicted schematically in figure 1.2. In a venture capital limited partnership, the venture capitalists are general partners and control the fund's activities. The investors serve as limited partners. Investors monitor the fund's progress and attend annual meetings, but they cannot become involved in the fund's day-to-day management if they are to retain limited liability. Venture partnerships have pre-determined, finite life spans. The limited partnership agreement explicitly specifies the terms that govern

1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
86	112	78	88	50	34	31	54	105	72	97	136
4,735	5,752	3,977	3,698	2,681	1,635	2,151	2,722	5,098	4,876	8,477	11,699
39%	27%	27%	22%	31%	25%	22%	59%	47%	38%	43%	40%
12%	12%	20%	14%	22%	17%	20%	[a]	[a]	[a]	[a]	[a]
11%	10%	12%	20%	7%	4%	3%	8%	9%	2%	13%	30%
12%	12%	8%	6%	11%	12%	11%	7%	12%	17%	9%	13%
6%	10%	11%	12%	13%	24%	18%	11%	21%	22%	21%	9%
10%	15%	9%	13%	9%	6%	14%	11%	9%	18%	5%	1%
11%	14%	13%	13%	7%	12%	11%	4%	2%	3%	8%	7%
75%	78%	80%	79%	80%	80%	81%	78%	78%			

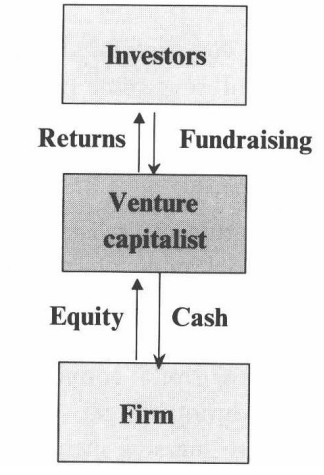

Figure 1.2
An overview of the venture capital process.