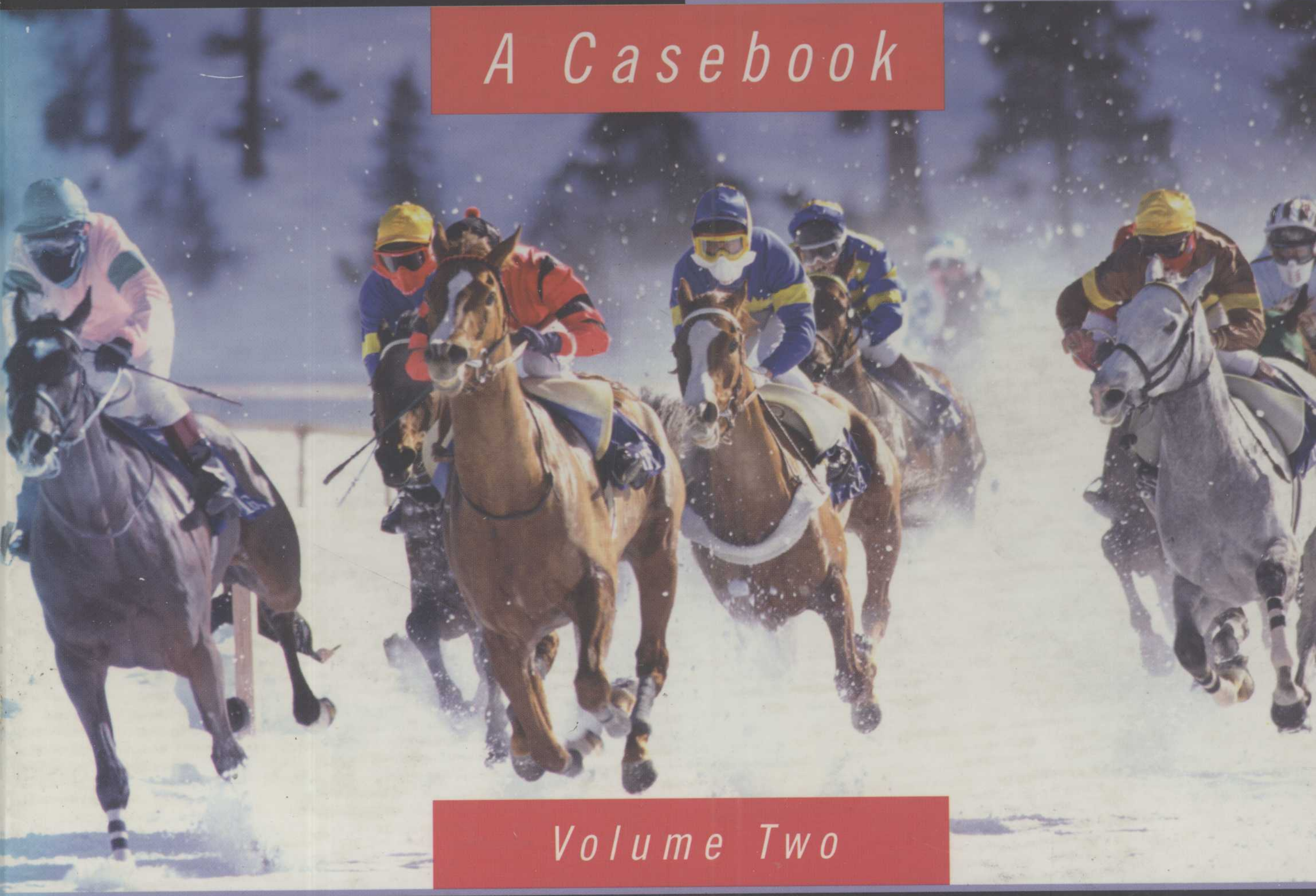
Venture Capital & Private Equity

A Casebook



Volume Two

JOSH LERNER • FELDA HARDYMON

VENTURE CAPITAL AND PRIVATE EQUITY
A Casebook

Volume II

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The writing of a case study is an activity that involves many people. From its initial conception to its publication and revision, a case involves practitioners, students, and colleagues at one's own and other schools. Thus, the problem with the acknowledgments section of a casebook is not deciding which individuals to include, but rather worrying about those one has left out!

First it is important to note that a number of case studies in this volume were written jointly with colleagues, students, and practitioners. Beyond these co-authors, many others provided assistance. The partners and managers of the many private equity groups, institutional investors, and companies featured in these cases not only agreed to be the subject of the analyses, but generously set aside time to answer many questions, review drafts, and make numerous helpful suggestions. Ann Leamon provided expert editorial and research support. Chris Allen responded to frequent requests for data, often under severe time constraints. Colleagues at Harvard Business School and many other business schools offered numerous suggestions after reading or teaching these cases. We also thank the many reviewers for their constructive comments and suggestions, which helped us raise the quality of our book: Sharon Brown-Hruska, School of Management, George Mason University; Douglas Cumming, University of Alberta School of Business; Andrew Metrick, University of Pennsylvania, The Wharton School. Marianne D'Amico and Suzanne Plummer managed the many logistical details regarding the casewriting process and provided unflagging administrative support. The Harvard Business School's Division of Research generously funded the considerable cost of developing these case studies. Kelly Tavares provided key assistance on the production of the volume. Finally, the encouragement and assistance of Leslie Kraham at John Wiley & Sons was critical in developing this volume.

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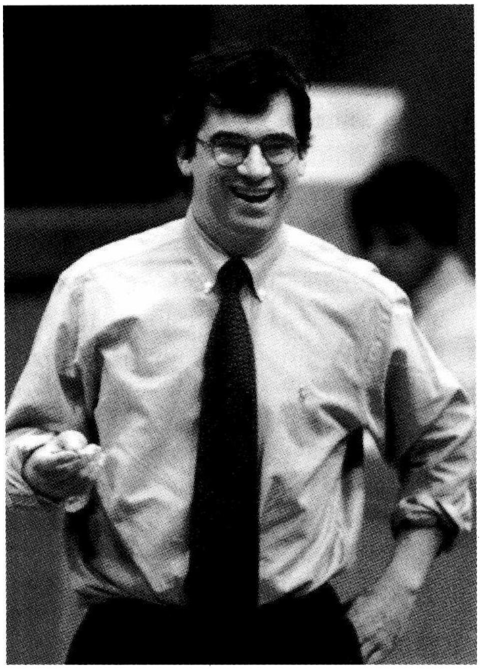
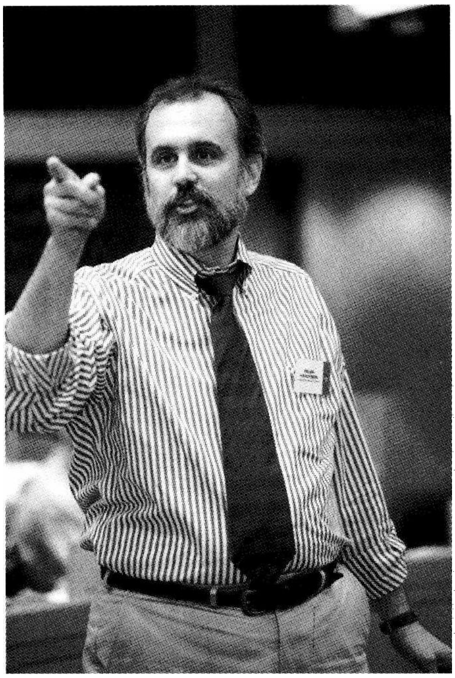
About the Authors



Josh Lerner is a Professor of Business Administration at Harvard Business School, with a joint appointment in the Finance and Entrepreneurial Management Units. He graduated from Yale College with a Special Divisional Major that combined physics with the history of technology, and worked for several years on issues concerning technological innovation and public policy, at the Brookings Institution, for a public-private task force in Chicago, and on Capitol Hill. He then earned a Ph.D. in Harvard's Economics Department. Much of his research, which is collected in *The Venture Capital Cycle* (1999) and *The Money of Invention* (2001), focuses on the structure and role of venture capital organizations. He is a Research Associate in the National Bureau of Economic Research's Corporate Finance and Productivity Programs. In addition, he is an organizer of the Innovation Policy and the Economy Group at the NBER, and serves as co-editor of their publication, *Innovation Policy and the Economy.* In the 1993–94 academic year, he introduced an elective course for second-year MBAs on private equity finance, today one of the five largest elective courses at Harvard Business School. In addition, he chairs and teaches an annual private equity executive education course, teaches several doctoral classes, and performs a variety of administrative roles at the School.



Felda Hardymon is a Senior Lecturer at the Harvard Business School and a career venture capitalist. He joined Bessemer Venture Partners (BVP) in 1981 where he continues as a general partner. BVP is among the oldest venture firms (1911) and is a long-standing specialist in early stage investing. He has led BVP's investments in over 60 companies in the software, communications and retail sectors, including Cascade Communications, Parametric Technology, Staples, and MSI. Previously he was a vice president of BDSI, the original venture subsidiary of General Electric Company, where he led investments in Ungermann-Bass, Stratus Computer, and Western Digital. He has served on the board of the National Venture Capital Association where he was Chairman of the Tax Committee. He received a B.S. from Rose Polytechnic Institute, a Ph.D. (mathematics) from Duke University, and an MBA (Baker Scholar) from Harvard Business School.

Dedication

To Mugsy and Boxy

To Bluesy, ETFF, and Wacker

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Private Equity Today and Tomorrow

Over the past two decades, there has been a tremendous boom in the private equity industry. The pool of U.S. private equity funds—partnerships specializing in venture capital, leveraged buyouts, mezzanine investments, build-ups, distressed debt, and related investments—has grown from $5 billion in 1980 to just under $300 billion at the beginning of 2001. Private equity's recent growth has outstripped that of almost every class of financial product.

Despite this growth, many questions about private equity remain unanswered, and many of its features continue to be mysterious. How do venture capital and buyout funds create value? What explains the tremendous growth in these funds? Has the level of fundraising "overshot" the target, and will it decline rapidly in the years to come? To what extent is the model developed and refined over the past several decades likely to be translated into other countries and types of investments? This volume explores these exciting and important questions.

WHAT IS PRIVATE EQUITY?

A natural first question is, what constitutes a private equity fund? Many start-up firms require substantial capital. A firm's founder may not have sufficient funds to finance these projects alone and therefore must seek outside financing. Entrepreneurial firms that are characterized by significant intangible assets, expect years of negative earnings, and have uncertain prospects are unlikely to receive bank loans or other debt financing. Similarly, troubled firms that need to undergo restructurings may find external financing difficult to raise. Private equity organizations finance these high-risk, potentially high-reward projects. They protect the value of their equity stakes by undertaking careful due diligence before making the investments and retaining powerful oversight rights afterward.

Typically, these investors do not primarily invest their own capital but rather raise the bulk of their funds from institutions and individuals. Large institutional investors, such as pension funds and university endowments, are likely to want illiquid long-run investments such as private equity in their portfolio. Often, these groups have neither the staff nor the expertise to make such investments themselves.

In its initial decades, the private equity industry was a predominantly American phenomenon. It had its origins in the family offices that managed the wealth of high net worth individuals in the last decades of the nineteenth century and the first decades of this century. Wealthy families such as the Phippes, Rockefellers, Vanderbilts, and Whitneys invested in and advised a variety of business enterprises, including the predecessor entities to AT&T, Eastern Airlines, and McDonald-Douglas. Gradually, these families began involving outsiders to select and oversee these investments.

The first formal private equity firm, however, was not established until after World War II. American Research and Development (ARD) was formed in 1946 by MIT president Karl Compton, Harvard Business School professor Georges F. Doriot, and local business leaders. A small group of venture capitalists made high-risk investments into emerging companies that were based on technology developed for World War II. The success of the investments ranged widely: almost half of ARD's profits during its 26-year existence 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. The few other venture organizations begun in the decade after ARD's formation were also structured as closed-end funds.

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. Most venture organizations raised money either through closed-end funds or Small Business Investment Companies (SBICs), federally guaranteed risk-capital pools that proliferated during the 1960s. Although the market for SBICs in the late 1960s and early 1970s was strong, incentive problems ultimately led to the collapse of the sector. The annual flow of money into private equity during its first three decades never exceeded a few hundred million dollars and usually was substantially less. During these years, while a few funds made a considerable number of investments in buyouts and other transactions involving mature firms, private equity organizations were universally referred to as venture capital funds.

The activity in the private equity industry increased dramatically in the late 1970s and early 1980s. Industry observers attributed much of the shift to the U.S. Department of Labor's clarification of the Employee Retirement Income Security Act's "prudent man" rule in 1979. Prior to this year, the legislation limited pension funds from investing substantial amounts of money into 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 private equity. Numerous specialized funds—concentrating in areas such as leveraged buyouts, mezzanine transactions, and such hybrids as venture leasing—sprang up during these years. Another important change in the private equity industry during this period was the rise of the limited partnership as the dominant organizational form.

The subsequent years saw both very good and trying times for private equity investors. On the one hand, during the 1980s venture capitalists backed many of the most successful high-technology companies, including Cisco Systems, Genentech, Microsoft, and Sun Microsystems. Numerous successful buyouts—such as Avis, Beatrice, Dr. Pepper, Gibson Greetings, and McCall Pattern—garnered considerable public attention in the 1980s. At the same time, commitments to the private equity industry during this decade were very uneven. The annual flow of money into venture capital funds increased by a factor of ten during the first half of the 1980s but steadily declined from 1987 through 1991. Buyouts underwent an even more dramatic rise through the 1980s, followed by a precipitous fall at the end of the decade.

Much of this pattern was driven by the changing fortunes of private equity investments. Returns on venture capital funds had declined sharply in the mid-1980s after being exceedingly attractive in the 1970s. This fall was apparently triggered by overinvestment in a few industries, such as computer hardware, and the entry of many inexperienced venture capitalists. Buyout returns underwent a similar decline in the late 1980s, due in large part to the increased competition between groups for transactions. As investors became disappointed with returns, they committed less capital to the industry.

By way of contrast, the 1990s have seen dramatic growth and excellent returns in almost every part of the private equity industry. This recovery was triggered by several factors. The exit of many inexperienced investors at the beginning of the decade insured that the remaining groups faced less competition for transactions. The healthy market for the initial public offerings during much of the decade meant that it was easier for all investors to exit private equity transactions. Meanwhile, the extent of technological innovation—particularly in information technology-related industries—created extraordinary opportunities for venture capitalists. New capital commitments to both venture and buyout funds rose in response to these changing circumstances, increasing to record levels by the late 1990s and 2000.

As is often the case, however, the growth of private equity increased at a pace that was too great to be sustainable. Institutional and individual investors—attracted especially by the tremendously high returns being enjoyed by venture funds—flooded money into the industry at unprecedented rates. In many cases, groups staggered under the weight of capital. Too rapid growth led to overstretched partners, inadequate due diligence, and, in many cases, poor investment decisions. The industry will need to address the legacy of this growth in the first years of the twenty-first century.

But the most revolutionary changes in private equity in recent years have not been in the patterns of investment, but rather in the structure of the private equity groups themselves. Private equity organizations, though in the business of funding innovation, had been remarkably steadfast in retaining the limited partnership structure since the mid-1960s. In recent years, however, a flurry of experimentation has taken hold in the industry. Among the changes seen are partnerships between venture capital and buyout organizations, the establishment of affiliate funds in different regions and nations, the launching of physical and "virtual" incubators by venture groups, and the expansion of the funds offered by buyout funds to include real estate, mezzanine, and bond funds.

What explains these sudden changes among the major private equity groups in recent years? We believe that these changes reflect a more fundamental shift in the industry, as private equity groups struggle to address the increasing efficiency of venture investing. Facing increased competition, they are seeking to find new ways to differentiate themselves.

Evidence of the increased efficiency of the venture industry can be seen in many places. Although venture capital for much of its first decades had the flavor of a cottage industry, with a considerable number of relatively small venture groups working alongside one another, today it is much more competitive. The increase in fund size and the decrease in syndication have greatly enhanced the competitive pressures between venture groups.

Given this changed competitive environment, the leading groups are increasingly seeking to differentiate themselves from the mass of other investors. They are employing a variety of tools to build up and distinguish their "brands," which will help distinguish themselves from other investors. These steps include the strategic partnerships, provision of additional services, and aggressive fundraising described earlier, as well as many other initiatives to extend their visibility in the United States and abroad.

To be sure, private equity is not unique in this transformation. For instance, the investment banking industry underwent a similar transformation in the 1950s and 1960s, as the leading "bulge bracket" firms solidified their leadership positions. The gap between the leading banks and the following ones greatly increased during these years, as the leading groups greatly expanded their range of activities and boosted their hiring of personnel. Similarly, the management of the major banks was transformed during these years, as procedures were systematized and management structures formalized.

WHY IS PRIVATE EQUITY NEEDED?

Private equity plays a critical role in the American economy and, increasingly, elsewhere around the globe as well. The types of firms that private equity organizations finance—whether young start-ups hungry for capital or ailing giants that need to restructure—present numerous risks and uncertainties that discourage other investors.

In this section, we will first review the risks that these firms pose. We will then consider briefly how private equity organizations address these problems. Finally, we will discuss why other financiers, such as banks, often cannot address these problems as effectively as private equity groups.

The financing of young and restructuring firms is a risky business. Uncertainty and informational gaps often characterize these firms, particularly in high-technology industries. These information problems make it difficult to assess these firms and permit opportunistic behavior by entrepreneurs after the financing is received.

To briefly review the types of conflicts that can emerge in these settings, conflicts between managers and investors ("agency problems") can affect the willingness of both debt and equity holders to provide capital. If the firm raises equity from outside investors, the manager has an incentive to engage in wasteful expenditures (e.g., lavish offices) because he or she may benefit disproportionately from these expenditures but does not bear their entire cost. Similarly, if the firm raises debt, the manager may increase risk to undesirable levels. Because providers of capital recognize these problems, outside investors demand a higher rate of return than would be the case if the funds were internally generated.[1]

Additional agency problems may appear in the types of entrepreneurial firms in which private equity groups invest. For instance, entrepreneurs might invest in strategies, research, or projects that have high personal returns but low expected monetary payoffs to shareholders. Consider the founder of a biotechnology company who chooses to invest in a type of research that brings him great recognition in the scientific community but provides little return for the venture capitalist. Similarly, entrepreneurs may receive initial results from market trials indicating little demand for a new product but may want to keep the company going because they receive significant private benefits from managing their own firm.

Even if the manager is motivated to maximize shareholder value, information gaps may make raising external capital more expensive or even preclude it entirely. Equity offerings of firms may be associated with a "lemons" problem: if the manager is better informed about the firm's investment opportunities and acts in the interest of current shareholders, then he or she will issue new shares only when the company's stock is overvalued. Indeed, numerous studies have documented that stock prices decline upon the announcement of equity issues, largely because of the negative signal sent to the

[1] The classic treatment of these problems is in Michael C. Jensen and William H. Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure," *Journal of Financial Economics* 3 (1976): 305–360.

market. This "lemons" problem leads investors to be less willing to invest in young or restructuring firms or to be unwilling to invest at all. Similar information problems have been shown to exist in debt markets.[2]

More generally, the inability to verify outcomes makes it difficult to write contracts that are contingent upon particular events. This inability makes external financing costly. Many economic models[3] argue that when investors find it difficult to verify that certain actions have been taken or certain outcomes have occurred—even if they strongly suspect the entrepreneur has followed an action that was counter to their original agreement, they cannot prove it in a court of law—external financing may become costly or difficult to obtain.

If the information problems could be eliminated, these barriers to financing would disappear. Financial economists argue that specialized intermediaries, such as private equity organizations, can address these problems. By intensively scrutinizing firms before providing capital and then monitoring them afterward, they can alleviate some of the information gaps and reduce capital constraints. Thus, it is important to understand the tools employed by private equity investors as responses to this difficult environment, which enable firms to ultimately receive the financing that they cannot raise from other sources. It is the nonmonetary aspects of private equity that are critical to its success. It is these tools—the screening of investments, the use of convertible securities, the syndication and staging of investments, and the provision of oversight and informal coaching—that we shall highlight in the second module of the course.

Why cannot other financial intermediaries (e.g., banks) undertake the same sort of monitoring? Although it is easy to see why individual investors may not have the expertise to address these types of agency problems, it might be thought that bank credit officers could undertake this type of oversight. Yet even in countries with exceedingly well-developed banking systems, such as Germany and Japan, policymakers today are seeking to encourage the development of a private equity industry to ensure more adequate financing for risky entrepreneurial firms.

The limitations of banks stem from several of their key institutional features. First, because regulations in the United States limit banks' ability to hold shares, they cannot freely use equity to fund projects. Taking an equity position in the firm allows the private equity group to proportionately share in the upside, guaranteeing that the investor benefits if the firm does well. Second, banks may not have the necessary skills to evaluate projects with few tangible assets and significant uncertainty. In addition, banks in competitive markets may not be able to finance high-risk projects because they are unable to charge borrowers rates that are high enough to compensate for the firm's riskiness. Finally, private equity funds' high-powered compensation schemes give these investors incentives to monitor firms more closely because their individual compensation

[2] The "lemons" problem was introduced in George A. Akerlof, "The Market for 'Lemons': Qualitative Uncertainty and the Market Mechanism," *Quarterly Journal of Economics* 84 (1970): 488–500. Discussions of the implications of this problem for financing decisions are in Bruce C. Greenwald, Joseph E. Stiglitz, and Andrew Weiss, "Information Imperfections in the Capital Market and Macroeconomic Fluctuations," *American Economic Review Papers and Proceedings* 74 (1984): 194–199 and in Stewart C. Myers and Nicholas S. Majluf, "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have," *Journal of Financial Economics* 13 (1984): 187–221.

[3] Important examples include Sanford Grossman and Oliver D. Hart, "The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration," *Journal of Political Economy* 94 (1986): 691–719 and Oliver D. Hart and John Moore, "Property Rights and the Nature of the Firm," *Journal of Political Economy* 98 (1990): 1119–1158.

is closely linked to the funds' returns. Banks, corporations, and other institutions that have sponsored venture funds without such high-powered incentives have found it difficult to retain personnel, once the investors have developed a performance record that enables them to raise a fund of their own.[4]

ABOUT THIS VOLUME

This volume is based on a course introduced at Harvard Business School in the 1993–1994 academic year. "Venture Capital and Private Equity" has attracted students interested in careers as private equity investors, as managers of entrepreneurial firms, or as investment bankers or other intermediaries who work with private equity groups and the companies that they fund. These cases have also been used in a variety of other settings, such as executive education courses at Harvard and graduate and undergraduate entrepreneurship courses at many other business schools. This second edition has been extensively revised to reflect the many changes in the industry in recent years.

A natural question for a reader to ask is what he or she will learn from this volume. This casebook has three goals:

- First, the private equity industry is complex. Participants in the private equity industry make it even more complicated by using a highly specialized terminology. These factors lead to the world of venture capital and buyout investing often appearing impenetrable to the uninitiated. Understanding the ways in which private equity groups work—as well as the key distinctions between these organizations—is an important goal.
- Second, private equity investors face the same problems that other financial investors do, but in extreme form. An understanding of the problems faced in private equity—and the ways that these investors solve them—should provide more general insights into the financing process. Thus, a second goal is to review and apply the key ideas of corporate finance in this exciting setting.
- Finally, the process of valuation is critical in private equity. Disputes over valuation—whether between an entrepreneur and a venture capitalist or between a private equity group raising a new fund and a potential investor—are commonplace in this industry. These disputes stem from the fact that valuing early-stage and restructuring firms can be very challenging and highly subjective. This casebook explores a wide variety of valuation approaches, from techniques widely used in practice to methods less frequently seen in practice today but likely to be increasingly important in the future years.

The volume is divided into four modules. Its organization mirrors that of the private equity process, which can be viewed as a cycle. The cycle starts with the raising of a private equity fund; proceeds through the investment in, monitoring of, and adding value to firms; continues as the private equity group exits successful deals and returns capital to their investors; and renews itself with the seeking of additional funds. Each module will begin with an overview that depicts the themes and approaches of the sec-

[4] The limitations of bank financing are explored in such theoretical and empirical academic studies as Joseph E. Stiglitz and Andrew Weiss, "Credit Rationing in Markets with Incomplete Information," *American Economic Review* 71 (1981): 393–409 and Mitchell A. Petersen and Raghuram G. Rajan, "The Effect of Credit Market Competition on Lending Relationships," *Quarterly Journal of Economics* 110 (1995): 407–444.

tion. Different classes, however, may choose to use this volume in different ways.[5] Thus, it may be helpful to briefly summarize the organization of the volume at the outset.

The first module of *Venture Capital and Private Equity* examines how private equity funds are raised and structured. These funds often have complex features, and the legal issues involved are frequently arcane. But the structure of private equity funds has a profound effect on the behavior of venture and buyout investors. Consequently, it is as important for an entrepreneur raising private equity to understand these issues as it is for a partner in a fund. The module will seek not only to understand the features of private equity funds and the actors in the fundraising process, but also to analyze them. We will map out which institutions serve to increase the profits from private equity investments as a whole and which seem designed mostly to shift profits *between* the parties.

The second module of the course considers the interactions between private equity investors and the entrepreneurs that they finance. These interactions are at the core of what private equity investors do. We will seek to understand these interactions through two perspectives.

We first consider how the activities undertaken by private equity organizations are a response to the challenges posed by the firms in their portfolio. We highlight how firms in a private equity portfolio typically present three critical problems, which make it difficult for them to meet their financing needs through traditional mechanisms, such as bank loans. This module will illustrate these approaches with examples from a wide variety of industries and private equity transactions.

The second approach emphasizes the influence of the circumstances of the private equity organization itself. There is typically no one "right" investment decision. Rather, the proper response to any given situation will reflect the circumstances of the private equity organization, such as the extent to which successful fundraising in the future can be assured and the experience of the individual investment professionals.

The third module of *Venture Capital and Private Equity* examines the process through which private equity investors exit their investments. Successful exits are critical to ensuring attractive returns for investors and, in turn, to raising additional capital. But private equity investors' concerns about exiting investments—and their behavior during the exiting process itself—can sometimes lead to severe problems for entrepreneurs. We will employ an analytic framework very similar to that used in the first module of the course. We will seek to understand which institutional features associated with exiting private equity investments increase the overall amount of profits from private equity investments and which actions seem to be intended to shift more of the profits to particular parties.

The final module reviews many of the key ideas developed in the volume. Rather than considering traditional private equity organizations, however, the two cases examine organizations with very different goals. Large corporations, government agencies, and nonprofit organizations are increasingly emulating private equity funds. Their goals, however, are quite different: for example, to more effectively commercialize internal research projects or to revitalize distressed areas. Corporate venture funds are also interesting because they represent an alternative way to break into the competitive private equity industry. These cases will allow us not only to understand these exciting and

[5] Although some courses may follow closely the order of cases in the volume, others may deviate substantially. For instance, a course concentrating on entrepreneurial finance may focus on cases in the second and third modules in the volume.

challenging initiatives, but also to review the elements that are crucial to the success of traditional venture organizations.

Three cases running through this volume emphasize one more theme: the challenge of managing a career in private equity. We consider the implications of a choice between different private equity organizations and investment opportunities from the perspective of a recent MBA graduate. The final case considers the choices and challenges faced by a venture capitalist almost a decade after graduation, who has had a career that has included corporate development, operating roles in a large corporation, and private equity.

At the same time, it is important to emphasize that there are many opportunities for learning about venture capital and private equity outside of this volume. The four module notes—and many of the topical notes interspersed in the body of the text—suggest further readings. These range from trade journals such as the *Private Equity Analyst* and the *Venture Capital Journal* to handbooks on the legal nuances of the private equity process to academic studies. In addition, a note at the end of this volume provides a systematic overview of many information sources for readers who wish to explore a particular aspect of the private equity industry in more detail.

THE FUTURE OF PRIVATE EQUITY

The cases and notes in this volume are designed to provide an understanding of the history of the private equity industry's development, and the workings of the industry today. Because the case studies must of necessity look at events in the past, they may provide less guidance about the future of the private equity industry. The question of how the venture and buyout industries will evolve over the next decade is a particularly critical one because the recent growth has been so spectacular. It is natural to ask whether the growth of private equity can be sustained. Has too much capital been raised? Is the industry destined to experience disappointing returns and shrink dramatically?

These are fair questions. As will be highlighted throughout this volume, short-run shifts in the supply of or demand for private equity investments can have dramatic effects. For instance, periods with a rapid increase in capital commitments have historically led to fewer restrictions on private equity investors, larger investments in portfolio firms, higher valuations for those investments, and lower returns for investors.

These patterns have led many practitioners to conclude that the industry is inherently cyclical. In short, this view implies that periods of rapid growth generate sufficient problems that periods of retrenchment are sure to follow. These cycles may lead us to be pessimistic about the industry's prospects in the years to come.

It is important, however, to also consider the *long-run* determinants of the level of private equity, not just the short-run effects. In the short run, intense competition between private equity groups may lead to a willingness to pay a premium for certain types of firms (e.g., firms specializing in tools and content for the Internet). This is unlikely to be a sustainable strategy in the long run: firms that persist in such a strategy will earn low returns and eventually be unable to raise follow-on funds.

The types of factors that determine the long-run steady-state supply of private equity in the economy are more fundamental. These are likely to include the pace of technological innovation in the economy, the degree of dynamism in the economy, the presence of liquid and competitive markets for investors to sell their investments (whether