OPENING FOCUS Amazon.com Redefines Electronic Commerce and Epitomizes Entrepreneurial Growth

Since its founding in July 1994, Amazon.com has emerged as one of the prototypical companies of the Internet age. Billed from inception as "Earth's Biggest Bookstore," Amazon.com quickly established itself as the premier online marketer of published materials, offering several million titles in a variety of languages. After expanding its online offerings in 1999 to include music, auctions, toys, electronics, travel, and other products and services, Amazon .com changed its slogan to claim that it had Earth's Biggest Selection™. The company's marketing savvy was demonstrated again in 2005, when the company announced outstanding results from sales of jewelry designed by Paris Hilton—including a pet collar inspired by her Chihuahua, Tinkerbell.

In addition to becoming a poster child for savvy electronic marketing, Amazon.com also offers a classic example of creative corporate finance. Amazon.com was launched with a \$10,000 cash investment and a \$15,000 loan by Jeffrey Bezos, the company's founder and CEO, and its early growth was fueled in part by credit card loans drawn on Mr. Bezos' personal account. One year after Amazon.com went "online" in July 1995, the company secured private equity funding from Silicon Valley's top venture capital firm (Kleiner Perkins Caufield & Byers), and in May 1997 the firm executed one of the splashiest initial public offerings of a very splashy decade. Within one year of its IPO and less than four years after its inception, Amazon.com had annual revenues of \$175 million and a market capitalization of over \$7 billion. Investors who purchased Amazon's stock at its IPO price of \$18 per share experienced a one-year return of over 400 percent, and the private equity investors (whose weighted average share purchase price was a mere \$0.56 per share) received an astronomical total return of over 15,000 percent! During the first guarter of 2005, Amazon's sales reached an annualized level of almost \$8 billion.

The brief but exciting history of Amazon.com offers a classic case study of the promise and perils of financing entrepreneurial growth companies. Venture capitalists facilitated Amazon.com's rapid early development, and the company later obtained a large chunk of pure risk capital (common stock equity) through a very successful IPO. Nevertheless, Amazon.com's evolution as a public company has been marked by an extremely high level of stock-price volatility, and the company faces the ongoing challenge of sustaining and financing rapid growth.

Sources: The information on Amazon.com cited in this chapter is drawn from a variety of sources, including the prospectus for the company's IPO, the firm's own now-famous website (http://www.amazon.com), the websites of CNN Money (http:// money.cnn.com) and Quicken (http://www.quicken.com), and various published reports.

Chapter 26

Entrepreneurial Finance and Venture Capital



- 26.2 Venture Capital Financing in the United States
- 26.3 Organization and Funding of Venture Capital Limited Partnerships
- 26.4 International Markets for Venture Capital and Private Equity
- 26.5 Summary

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he past quarter century has been kind to finance generally, but no area has prospered as much as the field of **entrepreneurial finance**. From the proliferation of venture capital investors to the boom and bust in Internet-related IPOs, the financial performance of **entrepreneurial growth companies** (EGCs) offered spectacular theater since the mid-1990s. In this chapter, we examine the particular challenges faced by financial managers of EGCs and the ways that venture capitalists (VCs) help meet these challenges. The topic is an important one, even for students who are not aspiring venture capitalists. With ECGs formerly the near-exclusive domain of small, highly specialized venture capital limited partnerships, their financing now affects professionals working for mutual funds, pension funds, and even Fortune 500 manufacturing companies. Increasingly, large corporations also have internal venture capital units charged with financing, nurturing, and growing new businesses. Deciding which EGCs to invest in as well as how to structure and monitor those investments presents a difficult problem. Studying how VCs approach these issues will teach lessons that extend well beyond the venture capital industry.

26.1 THE CHALLENGES OF FINANCING ENTREPRENEURIAL GROWTH COMPANIES

How does entrepreneurial finance differ from "ordinary" finance? Entrepreneurial growth companies differ from large, publicly traded firms in four important ways. First, EGCs often achieve compound annual growth rates of 50 percent or more in sales and assets. Though it is somewhat counterintuitive, companies growing that rapidly usually consume more cash than they generate because growth requires ongoing investments in fixed assets and working capital. In fact, there is an old saying that the leading causes of death for young firms are (1) not enough customers and (2) too many customers. Too many customers or very rapid growth can lead to bankruptcy if firms do not have adequate financing in place. Privately owned EGCs almost always plan to convert to public ownership, either through an initial public offering (IPO) or by selling out to a larger firm. Once they become publicly traded, EGCs tend to rely on external equity funding much more than do older, larger firms. In other words, EGCs grow rapidly and consume a great deal of cash, much of which they must obtain externally.

Second, the most valuable assets of many of these firms are often patents and other (intangible) intellectual property rights, which we know are inherently difficult to finance externally. This poses a huge challenge for EGC financial managers. Third, many entrepreneurial growth companies seek to commercialize highly promising but untested technologies, and this inevitably increases both the risk of failure and the potential payoff from success. Fourth, EGCs must attract, motivate, compensate, and retain highly skilled technical and entrepreneurial talent in a way that minimizes claims on the firm's current cash flow, which is often severely constrained.

Because of their extremely rapid growth in assets, EGCs must rely much more heavily on external equity financing than other companies. Although most technology- and knowledge-based companies also finance growth with equity, mature firms can meet their funding needs by reinvesting profits. Further, because most EGCs are privately held, they lack access to public stock markets and must rely instead on private equity financing. Private equity generally means either investments by current owners or funding by professional venture capitalists.

We should point out that the vast majority of firms, even those that subsequently emerge as EGCs, begin life on a modest scale and with little or no external equity fi-

SMART IDEAS VIDEO

Greg Udell, Indiana University "Firms that access venture capital finance typically have loads of intangible assets on their balance sheets and very little in the way of tangible assets."

See the entire interview at SMARTFinance

CHAPTER 26 ENTREPRENEURIAL FINANCE AND VENTURE CAPITAL

nancing besides that provided by the founder's friends and family. This is what Bhide (1992) calls *bootstrap finance*. Only after entrepreneurs exhaust these sources of personal equity can they expect to obtain debt financing from banks or other financial institutions.¹

1. What are the most important ways that entrepreneurial finance differs from "ordinary" finance? What special burdens confront financial managers of EGCs?

Concept Review Questions

2. Why do firms usually finance intangible assets with equity rather than with debt?

26.2 VENTURE CAPITAL FINANCING IN THE UNITED STATES

Defined broadly, *venture capital* has been a fixture of Western civilization for many centuries. In this context, the decision by Spain's Ferdinand and Isabella to finance the voyage of Christopher Columbus can be considered one of history's most profitable venture capital investments (at least for the Spanish). However, modern **venture capital**—defined as a professionally managed pool of money raised for the sole purpose of making actively managed direct equity investments in rapidly growing private companies—is a modern financial innovation. Until recently, only the United States had an active venture capital market.² This is changing rapidly, for many countries have experienced rapid growth in venture capital financing since the mid-1990s.

Gompers and Lerner (2001) trace the birth of America's venture capital industry to the American Research and Development Company (ARDC), which began operating in Boston shortly after the end of World War II. As often happens with pioneers, ARDC had to invent the practices of modern venture capital and made many unprofitable investments in its early years. However, ARDC more than made up for its early mistakes with a single, spectacularly successful investment in Digital Equipment. Through the late 1970s, the total pool of venture capital was quite small, and most of the active funds were sponsored either by financial institutions (e.g., Citicorp Venture Capital) or nonfinancial corporations (e.g., Xerox). Most of the money raised by these funds came from their corporate backers and from wealthy individuals or family trusts. There are two features of early venture capital funds that we still observe today: (1) These funds' investments were mostly intermediate-term, equity-related investments targeted at technology-based private companies, and (2) the venture capitalists played a unique role as active investors, contributing both capital and expertise to portfolio companies. Also, from the very start, VCs looked to invest in those rare companies with the potential of going public or being acquired at a premium within a few years and that offered investment returns of 25-50 percent per year.

^{1.} Academic researchers have long been fascinated with the entrepreneurial process and with assessing factors that increase the likelihood of success. Three particularly noteworthy recent articles in this research stream are Black and Strahan (2002), Gompers, Lerner, and Scharfstein (2005), and Bitler, Moskowitz, and Vissing-Jørgensen (2005). Black and Strahan document that banking deregulation has increased lending to entrepreneurs by promoting competition and by creating more efficient lending institutions. Gompers et al. show that the most prolific "spawners" of entrepreneurial growth firms are not large, diversified firms, but, rather, existing entrepreneurial companies in venture-capital-intensive regions, especially Silicon Valley and Massachusetts. Finally, Bitler et al. document the important—if unsurprising—results that entrepreneurial ownership hares increase with outside wealth and decrease with firm risk, that entrepreneurial effort increases with ownership, and that effort increases firm performance.

² Two older, though still frequently cited, articles describe the "classic" venture capital process in detail: Tybejee and Bruno (1984) and Gorman and Sahlman (1989). A more recent description of the venture capital investment process is provided by the National Venture Capital Association (NVCA), "The Venture Capital Industry: An Overview" (http:// www.nvca.org/def.html).

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A fundamental change in the U.S. venture capital market occurred during the late 1970s. Two seemingly unrelated public policy innovations contributed to this change. First, in 1978 Congress lowered the top personal income tax rate on capital gains from 35 percent to 28 percent, thereby increasing the return to entrepreneurship. Second, in 1979 the Labor Department adopted its "Prudent Man Rule," effectively authorizing pension fund managers to allocate a moderate fraction of fund assets to private equity investments. While neither of these changes appears revolutionary, their effect on venture capital funding was dramatic. Total venture capital funds raised increased from \$68.2 million in 1977 to \$978.1 million in 1978 (both figures are in 1987 dollars). A further capital gains tax reduction in 1981 contributed to venture capital funding growth from \$961.4 million in 1980 to \$5.1 billion in 1983. Funding then remained in the \$2–\$5 billion range for the rest of the 1980s. After falling to \$1.3 billion in 2000 before falling back to a mere \$3.8 billion during 2003. Fundraising rebounded to \$17.3 billion during 2004, then to \$25.2 billion in 2005.

Types of Venture Capital Funds

In discussing venture capital, we must carefully differentiate between institutional venture capital funds and angel capitalists. **Institutional venture capital funds** are formal business entities with full-time professionals dedicated to seeking out and funding promising ventures, while **angel capitalists** (or *angels*) are wealthy individuals who make private equity investments on a more ad hoc basis. A vibrant market for "angel capital" exists and routinely provides over \$50 billion per year in total equity investment to private businesses in the United States.³ Until very recently, angel capitalists provided far more total investment to entrepreneurial companies each year than did institutional venture capital firms. Nonetheless, we focus on the latter group throughout this text because these firms operate nationally and provide the performance benchmark against which all private equity investment is compared.

There are four categories of institutional venture capital funds. First, **small business investment companies (SBICs)** are federally chartered corporations established as a result of the Small Business Administration Act of 1958. Since then, SBICs have invested over \$14 billion in approximately 80,000 small firms.⁴ Historically, these venture capitalists have relied on their unique ability to borrow money from the U.S. Treasury at very attractive rates. SBICs were the only types of VCs that structured their investments as debt rather than equity. This feature seriously hampered their flexibility, but a revision of the law in 1992 has made it possible for SBICs to obtain equity capital from the Treasury in the form of preferred equity interests and also to organize themselves as limited partnerships. Recent evidence suggests that this change, by itself, has not allowed SBICs to regain venture capital market share.

Second, financial venture capital funds are subsidiaries of financial institutions, particularly commercial banks. These are generally set up both to nurture portfolio companies that will ultimately become profitable customers of the corporate parent

^{3.} The angel capital market is discussed in Lerner (1998), Freear, Sohl, and Wetzel (2000), and Wong (2001). Additionally, Campbell (2001) cites a Global Entrepreneurship Monitor 2001 report suggesting that informal investors (angels) provide about \$196 billion to start-up and early-stage companies in 29 countries each year.

^{4.} SBICs are discussed in more depth in Brewer and Genay (1994) and Birnbaum (1999). A wealth of information about SBICs may be found at http://www.sba.gov/INV, the home page of the SBIC program. We also wish to thank Mr. Richard Testa, long considered America's premier venture capital lawyer, for taking the time to comment on (and sometimes correct) an earlier draft of this chapter. His insights regarding the growth of the venture capital industry proved especially helpful.

and to earn high investment returns by leveraging the financial expertise and contacts of existing corporate staff. Third, **corporate venture capital funds** are subsidiaries or stand-alone firms established by nonfinancial corporations eager to gain access to emerging technologies by making early-stage investments in high-tech firms. Finally, **venture capital limited partnerships** are funds established by professional venture capital firms. These firms act as the general partners organizing, investing, and managing the capital raised from the limited partners. Most limited partnerships have a single-industry focus determined by the expertise of the general partners.

Limited partnerships dominate the venture capital industry, at least partly because they make their investment decisions free from outside influences. The SBICs have been hampered both by their historical reliance on inappropriate funding sources and by the myriad regulations that apply to government-sponsored companies. The financial and corporate funds tend to suffer because their ultimate loyalty rests with their corporate parents rather than with their portfolio companies. Corporate funds are also notorious for showing only intermittent commitment to venture capital investing, since they tend to scale back dramatically when business conditions sour. For all these reasons, the limited partnerships now control over 75 percent of total industry resources, and their sway over fund-raising seems to be increasing. Gompers and Lerner (2001) provide a detailed history of the development of the U.S. venture capital industry and describe the key comparative advantages of limited partnerships.

INVESTMENT PATTERNS OF U.S. VENTURE CAPITAL FIRMS

Given the media attention lavished on venture capital in the United States, most people are surprised to learn just how small the industry actually was before 1998. Figure 26.1 plots the total amount of capital invested each year from 1990 through the first quarter of 2005. Annual disbursements naturally differ from total fundraising, because the total amount of money available for investment is the sum of realized investment returns (from IPOs and mergers of portfolio companies) and new fund inflows from investors. Figure 26.1 reveals that total investments by VCs never exceeded \$6 billion until 1996. Total investment spending then surged to an astonishing \$104.8 billion (spread over 7,832 companies) in 2000, before declining very sharply to \$18.9 billion in 2003. The average investment of \$13.38 million per company during 2000 was three times larger than the \$4.75 million average investment per company in 1997 and almost twice 2004's \$7.31 million average, when total investment rebounded slightly to \$21.0 billion.⁵ Total investment rose slightly again during 2005, to \$21.6 billion.

Whereas the bulk of venture capital funding once came either from corporate sponsors (in the case of financial or corporate funds) or wealthy individuals, institutional investors have become the dominant sources of funding today. Pension funds alone typically account for 20-40 percent of all new money raised by institutional venture capital firms. Even though few pension funds allocate more than 5 percent of their total assets to private equity funding, their sheer size makes them extremely

^{5.} A number of academic studies have examined how various factors—especially the incidence and levels of personal and corporate taxation—influence the amount of money raised and invested by American venture capital funds each year. Gompers and Lerner (1998a) find that decreases in capital gains tax rates appear to have a positive and important impact on commitments to new venture capital funds. This is actually rather surprising, because the dominant investors in venture capital funds are untaxed pension funds. Gompers and Lerner conclude that the relationship between taxation and venture capital commitments is an induced one because reductions in tax rates cause more entrepreneurs to start companies and thus demand private equity financing.

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Figure 26.1

Annual Venture Capital Investments in the United States, 1990–2005 (in \$ billion current dollars) Source: National Venture Capital Association (www.nvca.com). Note: \$18.4 billion figure for 2005 based on annualizing first quarter figure of \$4.6 billion.

important investors, and their long-term investment horizons make them ideal partners for venture capital funds. Financial and nonfinancial corporations usually represent the second-largest contributors of capital to venture funds, accounting for 10-30 percent of the total. Foundations (endowments) are the third important source of venture capital funding, usually accounting for 10-25 percent of the total. Foreign investors have become increasingly important recently, while individuals and family trusts are the final major group of venture capital investors. These two groups together generally contribute 10-25 percent of the total venture capital funding.

Industrial and Geographic Distribution of Venture Capital Investment.

One reason for the success enjoyed by institutional VCs is that they usually invest only in those industries where they have some competitive advantage and where their involvement in portfolio-company management can create real economic value. Table 26.1 lists the industries that received the most venture capital funding in 2004 and 2000. Typical of the history of venture capital, the majority of investment flowed into information technology industries (communications and computers) during both periods. Networking and equipment investments accounted for a whopping 46.4 percent of the total in year 2000 but for only 7.4 percent of 2004's total.

Another striking regularity in venture capital investment patterns concerns the geographical distribution of portfolio companies. Firms located in California consistently receive more venture backing than firms in any other state. For instance, in the fourth quarter of 2004, California firms captured 45.0 percent of total funding, three times the funding received by firms in New England (15.1%). The money flows into California dwarfed those in other large, populous states, such as Texas (5.6%) and New York (4.8%).

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	Percent of total investments		
Industry	2004	2000	
Computer software	24.1%	14.0%	
Biotechnology	18.3	2.7	
Telecommunications	8.9	17.1	
Medical devices and equipment	8.7	3.5	
Semiconductors	7.8	5.9	
Networking and equipment	7.4	46.4	
Media and entertainment	4.3	_	
Industrial/energy	3.2	1.4	
Computers and peripherals	2.4	2.2	
Other products and services	14.9	6.8	
Total (\$ million)	\$20,941	\$102,976	

Table 26.1U.S. Venture CapitalInvestment by Industry:2004 and 2000

Source: PricewaterhouseCoopers/ LLP MoneyTree™ quarterly description of venture capital investment in the United States (www.pwcmoneytree.com).

Venture Capital Investment by Stage of Company Development. The popular image of VCs holds that they specialize in making investments in start-up or very early-stage companies. This is only partly true. In fact, as Figure 26.2 documents, early-stage financing accounted for only 20.3 percent of total investment during 2003 and 2004, down from 27.5 percent in 2000 and 32.5 percent in 1997. Truly early-stage (start-up and seed-stage) financing represented a mere 1.7 percent of 2004 financing, and similarly small fractions were allocated in prior years. However, if we broaden the definition of *early stage* to include a fraction of expansion spending, total early-stage investment would probably fall in the range of 35–50 percent of ven-



Figure 26.2

U.5. Venture Capital Investments by Stage of Company Development, Percent of Total Investment, 1997–2004 Source: Pricewaterhouse-Coopers LLP MoneyTree[™] quarterly description of venture capital investment in the United States (www .pwcmoneytree.com).

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ture capital disbursements each year. Being rational investors, venture capitalists are as leery as anyone else of backing extremely risky new companies, and they will do so only if the entrepreneur/founder is well known to the venture capitalists, the venture is extraordinarily promising, or both. Later-stage investments in more mature private companies accounted for 34 percent of total venture capital investment during 2004, 26 percent in 2003, and about 15 percent in 2000 and 1997. These investments represent funding for marketing programs and major production plant expansions and financing made in preparation for accessing the public capital markets.

Although the distribution between early- and later-stage funding varies from year to year, one principle of venture capital funding never changes—the earlier the development stage of the portfolio company, the higher must be the expected return on the venture capitalist's investment. Professional VCs typically demand compound annual investment returns in excess of 50 percent on start-up investments, but they will accept returns of 20-30 percent per year on later-stage deals because the risk is far lower in more established companies. VCs extract a higher expected return on early-stage investments in part by requiring entrepreneurs to sell them a higher ownership stake in these deals.

Usually, though, there is not a stark choice between early- and later-stage investments. Most VC funds that invest in a company during its early years remain committed to the firm as it develops, and they typically participate in many financing rounds as the portfolio company matures. On average, the prices venture capitalists pay to acquire additional shares in portfolio companies rise in each subsequent round of financing.

THE ECONOMIC IMPACT OF VENTURE CAPITAL INVESTMENT

Before turning to an examination of the organizational structure of the U.S. venture capital industry, we should briefly assess whether venture capital investments have really been as large and influential as is generally believed. A recent study published by the National Venture Capital Association documented the scale and economic impact of 34 years of VC investment in the United States.⁶ The key results of that study are presented in Table 26.2. Over the period 1970-2003, American venture capitalists invested \$338.5 billion into 26,278 companies in all 50 states, with no less than \$192 billion of that investment coming during the six-year period 1995-2000. Venture capital-backed firms employed 10.1 million people and generated \$1.8 trillion in sales during 2003, representing 9.4 percent of American jobs and 9.6 percent of national sales that year. An earlier version of this study (Metzger and Brooks, 2001) also found that, over the 1970-2000 period, "venture capital-financed companies had approximately twice the sales, paid almost three times the federal taxes, generated almost twice the exports, and invested almost three times as much in R&D per \$1,000 in assets as did the average non-venture-capital-backed companies." The 2001 study documented that, on average, every \$36,000 in VC investment created one new job.

Much the same pattern is observed in Western Europe, the other major international market for venture capital. A study by the European Private Equity and Venture Capital Association found that VC-backed European companies generated significantly higher growth rates in sales, research spending, exports, and job creation during the 1990–1995 period than did otherwise comparable non-VC-backed com-

^{6.} See Global Insight, "Venture Capital Impact 2004: Venture Capital Benefits to the US Economy," available for downloading from the NVCA website, http://www.nvca.com/pdf/VentureImpact2004.pdf. This table is supplemented with investment data drawn from other NVCA sites.

State	Cumulative VC Invested, 1970–2004 (\$ millions)	Sales of VC-Backed Firms, 2003 (\$ millions)	Employment by VC-Backed Firms, 2003 (number of workers)	Venture Capital Invested, 2004 (\$ millions)
California	\$156,525	\$ 438,000	2,470,00	\$ 9,346
Massachusetts	38,521	107,000	712,300	2,775
Texas	23,609	188,000	899,200	1,097
New York	20,375	80,000	470,500	721
New Jersey	12,944	50,000	310,900	720
Colorado	12,831	_	_	444
Washington	10,287	102,000	399,900	868
Pennsylvania	9,728	94,000	604,000	526
Virginia	9,273	64,000	333,200	272
Georgia	8,833	91,000	551,400	585
U.S. Total	\$340,000	\$1,800,000	10,100,000	\$20,941

Source: "Venture Impact 2004: Venture Capital Benefits to the U.S. Economy," Global Insight (Arlington, VA), reported by the National Venture Capital Association (October 22, 2001) (www.nvca.com). 1970–2000 venture capital investment amounts are from Jeanne Metzger and Channa Brooks, "Three Decades of Venture Capital Investment Yields 7.6 Million Jobs and \$1.3 Trillion in Revenue," National Venture Capital Association (October 22, 2001), and 2001–2004 venture capital investment amounts are from the PWCMoneyTree database (www.pwcmoneytree.com).

panies.⁷ Recent updates of this study have shown that European private equity funds invested \in 9.8 billion in 8,684 VC-stage companies during 2002, and roughly one-third the total investment was in early-stage companies. Finally, an astonishing 95 percent of European venture-backed companies said they either would not exist or would not have developed as quickly without VC investment.

3. What is an *angel capitalist,* and how does this type of investor differ from a professional (institutional) venture capitalist?

4. Why do you think that private limited partnerships have come to dominate the U.S. venture capital industry? Can you think of any weaknesses this organizational form might have as a vehicle for financing entrepreneurial growth companies?

Concept Review Questions

26.3 ORGANIZATION AND FUNDING OF VENTURE CAPITAL LIMITED PARTNERSHIPS

Most of the top venture capital firms are organized as general partnerships, and many of these are concentrated in California's Silicon Valley, south of San Francisco.⁸ These firms usually begin the venture financing process by creating a distinct limited partnership fund, typically with a dedicated investment target, such as funding Internet start-ups.

Table 26.2

2004

The Economic Impact of 35 Years of U.S. Venture Capital Funding, 1970–

Cumulative Investment (1970–2003); Year 2003 Sales and Employment of Venture-Backed Companies, Year 2004 VC Investment and Growth Rate

^{7.} The study is entitled "Survey of the Economic and Social Impact of Venture Capital in Europe" and is available for downloading at http://www.evca.com/images/attachments/tmpl_9_art_37_att_333.pdf.

^{8.} In particular, Sand Hill Road near Stanford University is venture capital's epicenter. This street is home to no fewer than 50 venture capital firms as well as a large number of accounting, law, and investment banking firms.

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Stanford University "Venture capital does have a positive role for innovative companies in helping to push their product out quickly."

See the entire interview at SMARTFinance

Although some venture funds are created by public offerings of limited partnership interests (which can then be freely traded), most are organized and capitalized by private negotiation between the fund's sponsor and a well-established group of institutional investors. To say that a fund is "capitalized" at its inception is something of a misnomer. In practice, the limited partners make capital commitments, which the general partner then draws on over time as the fund becomes fully invested. In addition to organizing the limited partnership, the sponsoring firm acts as the general partner (and has unlimited liability) over the fund's entire life, typically 7 to 10 years. As general partner, the VC is responsible for (1) seeking out investment opportunities and negotiating the terms on which these investments will be made; (2) monitoring the performance of the portfolio companies and providing additional funding and expertise as necessary; (3) finding an attractive exit opportunity, such as an IPO or a merger, that will allow the fund to liquidate its investments; and (4) distributing the realized cash returns from these exit opportunities to the limited partners and then terminating the fund. For its services, the general partner usually receives a percentage claim on the realized return (almost always 20%) as well as an annual management fee equal to 1-3 percent (usually 2.5%) of the fund's total committed capital.

Many senior partners at top venture capital firms have become legendary for their skill in finding, nurturing, and bringing to market high-tech companies. Examples include John Doerr of Kleiner Perkins Caufield & Byers, William Hambricht of Hambricht and Quist, and Sam Rosen of Rosen Partners. These industry leaders have become extraordinarily wealthy, but even "ordinary" venture capitalists did quite well during the 1995-2000 boom. The industry's financial rewards attract numerous would-be VCs, but jobs in the industry are notoriously difficult to obtain, particularly for newly minted MBAs. Partners and associates in venture capital firms often are engineers or other technically trained professionals who themselves worked in high-tech companies before becoming full-time VCs. This experience gives them in-depth knowledge of both the technological and business aspects of the industries in which they invest. It is this expertise, along with capital and contacts, that entrepreneurs look for when they approach a VC for funding. For example, John Doerr of Kleiner Perkins Caufield & Byers has bachelor's and master's degrees in electrical engineering (plus an MBA from Harvard Business School), and worked for Intel Corporation for five years before becoming a venture capitalist.

How Venture Capitalists Structure Their Investments

Although one should be wary of describing anything as unique as a venture capital investment contract as "standard," most agreements between VCs and entrepreneurs share certain characteristics.⁹ First and foremost, venture capital contracts allocate risk, return, and ownership rights between the entrepreneur (and other existing owners of a portfolio company) and the fund. The distribution of rights and responsibilities depends on (1) the experience and reputation of the entrepreneur, (2) the attractiveness of the portfolio company as an investment opportunity, (3) the stage of the company's development, (4) the negotiating skills of the contracting parties, and

⁹. Kaplan and Strömberg (2001) present what is probably the most comprehensive academic analysis of how VCs contract with entrepreneurs to allocate cash flow and control rights between the firm and the VC fund. Other excellent papers on the subject include those by Sahlman (1988, 1990), Testa (1988), Gompers (1995), and Lerner (1995).

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(5) the overall state of the market.¹⁰ If, at a time of fierce competition among VCs, a respected and experienced entrepreneur approaches a fund with an opportunity to invest in an established company with a promising technology, the entrepreneur will secure financing on relatively attractive terms. However, if an inexperienced entrepreneur asks for start-up funding at a time when venture capital is scarce (such as the early 1990s), the entrepreneur will have to accept fairly onerous contract terms to attract funding.

Early in the negotiation process, the parties must estimate the portfolio company's value. The company's past R&D efforts, its current and prospective sales revenue, its tangible assets, and the present value of its expected net cash flows all enter into the valuation equation. In large measure the valuation will determine what fraction of the firm the entrepreneur must exchange for venture backing. Next, the parties must agree on the amount of new funding the venture capitalist will provide and the required return on that investment.¹¹ Naturally, the higher the perceived risk, the higher the required return.

Venture capitalists use staged financing to minimize their risk exposure. To illustrate how staged financing works, assume that a company needs \$25 million in private funding to fully commercialize a promising new technology. Rather than invest the entire amount at once, the venture capitalist initially advances only enough (say, \$5 million) to fund the company to its next development stage. Both parties agree to specific performance objectives (e.g., building a working product prototype) as a condition for more rounds of financing. If the company succeeds in reaching those goals, the venture capitalist will provide funding for the next development stage, usually on terms more favorable to the entrepreneur. Staged financing is not only a very efficient way to minimize risk for the venture capitalist, but it also gives the venture fund an extremely valuable option to deny or delay additional funding. This cancellation option places the maximum feasible amount of financial risk on the entrepreneur, but in return it allows the entrepreneur to obtain funding at a less onerous price than would otherwise be possible. Staged financing also provides tremendous incentives for the entrepreneur to create value because at each new funding stage, the VC provides capital on increasingly attractive terms.



Steve Kaplan, University of Chicago "It's not just about what fraction of the company the venture capitalists are getting."

See the entire interview at SMARTFinance

APPLYING THE MODEL 26.1

Gompers (1995) provides two classic examples of how staged financing should work in the development of private companies: Apple Computer and Federal Express. Apple received three rounds of private equity funding. In the first round, venture capitalists purchased stock at \$0.09 per share, but this rose to \$0.28 per share in the second round and then to \$0.97 per share in the third round. Need-

^{10.} Kaplan and Strömberg (2003) examine the process of venture capital investment screening, and they show that many factors—market size, business strategy, the firm's technology and customer base, and potential competition—influence the investment decision. Kaplan and Strömberg also describe how the allocation of control rights between VC and entrepreneur is determined; Baker and Gompers (2001) examine how board seats are allocated; and Christopher (2001) describes several of the important legal hurdles VCs must confront when evaluating an investment opportunity. Hellmann and Puri (2002) examine how venture capitalists create value by helping professionalize the start-up companies in which they invest. This involves helping companies develop compensation and human resource policies and hire key executives (such as a marketing VP) and intervening to replace poorly performing managers early enough to promote effective change. Finally, Hsu (2004) shows that entrepreneurs are willing to accept a lower valuation for their companies—and thus give up a larger fraction of equity for a given amount of capital raised—in order to attract investment from one of the more prestigious venture capital firms.

¹¹. Entrepreneurs wishing to determine how much capital they should try to obtain from VCs should read the classic Harvard Business School article by Stancill (1987), "How Much Money Does Your New Venture Need?"

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less to say, all these investments proved spectacularly profitable when Apple went public at \$22.00 per share in 1980. Investors in Federal Express, however, used staged financing with more telling effect during their three rounds of private equity financing. The investors purchased stock for \$204.17 per share in the first round, but the firm's early performance was much poorer than anticipated. In the second round, shares were purchased for \$7.34 each, but the company's finances continued to deteriorate, so a third financing round, at \$0.63 per share, was required. As we know, FedEx eventually became a roaring success and went public at \$6.00 per share in 1978, but staged financing allowed venture capitalists to intervene decisively during the firm's problematic early development.

A distinguishing characteristic of venture capital investment contracts is their extensive and sophisticated use of covenants. These are contract clauses that mandate certain things that the portfolio firm's managers must do (**positive covenants**) and must not do (**negative covenants**). Some of these covenants appear in standard bond and loan-financing contracts. For example, venture capital contracts often contain clauses that specify maximum acceptable leverage and dividend payout ratios, require the firm to carry certain types of business insurance, and restrict the firm's ability to acquire other firms or sell assets without prior investor approval. Again, Amazon.com provides an illustrative case. The firm's bank required Jeffrey Bezos to personally guarantee all the company's borrowing prior to its IPO. Other covenants, including the following types, occur almost exclusively in private equity investment contracts.

- 1. **Ownership right agreements** not only specify the distribution of ownership but also allocate board seats and voting rights to the participating VC. Special voting rights often given to VCs include the rights to veto major corporate actions and to remove the management team if the firm fails to meet performance goals.
- 2. Ratchet provisions protect the venture group's ownership rights in the event that the firm sells new equity under duress. Generally, these provisions ensure that the venture capital group's share values adjust so that the entrepreneur bears the penalty of selling low-priced new stock. For example, if the venture fund purchased shares initially for \$1 each and the start-up later sells new stock at \$0.50 per share, a "full ratchet" provision mandates that the venture group receives one new share for each old share, thereby protecting the value of the VC's initial stake (a "partial ratchet" only partially protects the venture group). Obviously, it would not take many rounds of financing at reduced prices to completely wipe out a management team's ownership stake.¹²
- 3. Demand registration rights, participation rights, and repurchase rights preserve exit opportunities for VCs. *Demand registration rights* give the venture fund the right to compel the firm to register shares with the SEC for a public offering—at the firm's expense. The venture capital investors in Amazon.com had such a demand registration right, though they never exercised it. *Participation rights* give VCs the option to participate in any private stock sale the firm's managers arrange for themselves. In the event that a portfolio company does not conduct an IPO or sell out to another firm within a specified time period, *repurchase rights* give VCs the option to sell their shares back to the firm.

^{12.} For a simple discussion of ratchet provisions, see Hoffman and Blakey (1987). The critical importance of the lead venture capitalist's being able to retain a proportionate share in multiround financings is described theoretically in Admati and Pfleiderer (1994).

4. Stock option plans provide incentives for portfolio-company managers in virtually all venture capital deals. As part of these plans, the firm sets aside a large pool of stock to compensate current managers for superior performance and to attract talented new managers as the company grows.

APPLYING THE MODEL 26.2

Amazon.com provides an example of using stock options to compensate and motivate managers. At the time of the firm's IPO, no less than 10.8 million shares were reserved under two stock option plans, and over 4 million had already been allocated to the firm's executives.

This listing of covenants is by no means comprehensive. Other common provisions describe the conditions for additional financing and the payoffs to entrepreneurs if the VCs decide to hire new managers. However, the most fascinating and distinguishing feature of venture capital contracts is unquestionably their near-total reliance on convertible securities as the investment vehicle of choice.

WHY VENTURE CAPITALISTS USE CONVERTIBLE SECURITIES

Most people assume that when VCs invest in a firm, they receive shares of common stock in exchange for their capital. In fact, venture capitalists almost always receive some type of convertible security instead, either convertible debt or, more frequently, convertible preferred stock.¹³ There are several reasons for this marked preference. First, venture capitalists would only be able to exercise effective voting control with common stock if they were to purchase a majority of a firm's common shares, which would be extremely expensive and would place far more of the firm's business risk on the venture group than on the entrepreneur. Because convertible debt or preferred stock is a distinct security class, contract terms and covenants specific to that issue are negotiable. Furthermore, because firms can create multiple classes of convertible debt or preferred stock, they can use these securities to construct extremely complex, sophisticated contracting arrangements with different investor groups.¹⁴

Seniority offers a second reason why venture capitalists generally demand convertible debt or preferred stock rather than common stock. This places the VC ahead of the entrepreneur in the line of claimants on the firm's assets should the firm not succeed. However, preferred stock or subordinated debt leaves the firm the option to issue more senior debt, thereby preserving its borrowing capacity and making it easier for the firm to arrange trade credit or bank loans. The convertible securities held by VCs typically pay a very low dividend, suggesting that VCs use these securities for control reasons rather than to generate steady cash flows.

Most important, convertible securities give VCs the right to participate in the upside when portfolio companies thrive. In fact, VCs usually convert to common equity

^{13.} SBICs have historically been an exception to this rule because their funding patterns dictated they structure their investments as loans. During recent years this has changed because they can now obtain their own funding via a security that is, in effect, preferred stock. Additionally, Wong (2001) shows that angel capitalists generally use only common stock in their investments.

^{14.} Numerous theoretical papers have attempted to explain the use of convertibles by venture capitalists. These include papers by Admati and Pfleiderer (1994), Hellmann (1998), Berglöf (1994), and, most recently, Bascha and Walz (2001).

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before venture-backed companies execute initial public offerings to lock in their equity stakes and to present an uncluttered balance sheet to prospective investors.

APPLYING THE MODEL 26.3

The venture capitalists backing Amazon.com structured their entire investment (in June 1996) as convertible preferred stock, for which they paid \$14.05 per share. Two of the firm's directors, who purchased convertible preferred stock in a much smaller, subsequent financing round in early 1997, paid \$40 per share.

THE PRICING OF VENTURE CAPITAL INVESTMENTS

As you might expect, valuing the types of young, rapidly growing companies that venture capital firms finance presents a huge challenge. How do VCs value portfolio companies? The empirical evidence suggests that VCs use a wide variety of valuation methods and that, from one deal to the next, valuations can be rather idiosyncratic. Nevertheless, we offer an example to illustrate one common approach.¹⁵ Assume that the president and founder of the start-up company Internet Concepts Corporation (ICC) approaches a technology-oriented venture capital fund for \$5 million in new funding to support her firm's rapid growth. After intense negotiations, the parties agree that ICC is currently worth \$10 million, and the risk of the firm is such that the venture capitalist is entitled to a 50 percent compound annual (expected) return. To arrive at the \$10 million estimate, the VC may compare the portfolio company's sales (or earnings if there are any) to those of similar public companies and apply a pricing multiple. Assume further that both parties agree that ICC should plan to execute an IPO in five years, at which time the firm is expected to have net profits of \$4 million and to sell at a price/earnings ratio of 20, which will put the company's value at \$80 million. To calculate the value of its stake in the portfolio company as of the IPO date, the VC uses basic future value techniques. The initial investment, A, equals \$5 million; the required rate of return, r, is 50 percent; and the time horizon, n, is five years.

$$FV = A(1 + r)^n = \$5,000,000(1.50)^5 = \$5,000,000(7.6)$$

= \\$38,000,000 (Eq. 26.1)

To determine what fraction of ICC's equity it will receive now, the VC divides the future value of its stake by ICC's expected IPO market valuation:

Equity fraction
$$= \frac{FV}{Exp MV} = \frac{\$3\$,000,000}{\$80,000,000} = 0.475$$
 (Eq. 26.2)

This means that the venture capital fund will receive 47.5 percent of ICC's equity in exchange for its \$5 million investment. If the VC agrees to accept a lower return, say 40 percent, the VC's expected IPO payoff will be \$26.9 million, and the VC would require a 33.6 percent equity stake up front to achieve this return. When the VC requires a higher return, the entrepreneur must relinquish a larger fraction of the firm.

^{15.} This example is based on information presented in Schilit and Willig (1996). Additional discussion of the pricing of VC investments is presented in Morris (1988), Katz (1990), and, in a theoretical context, Hellmann (2002).

The Profitability of Venture Capital Investments

Interpreting the data on venture capital returns is controversial, but it seems clear that investments made by venture capital funds during the mid-1990s earned average compound annual returns of up to 30 percent.¹⁶ Gompers and Lerner (2001) document repeated examples of boom-and-bust investment cycles, in which very high realized returns prompt excessive new capital inflows into venture capital funds, which in turn cause returns to drop sharply over the next harvest cycle. Although the 30 percent annual return was typical for venture capital funds during the late 1970s and early 1980s, returns fell short of 30 percent every year from 1984 to 1994. Returns were again at target levels in 1995 and 1996 and then surged in 1999. However, more recent returns following the collapse of the Nasdaq market in March 2000 have been uniformly negative, as Table 26.3 demonstrates. The first column of the table shows the 1-year returns on various types of venture capital investments for 2004, while the other columns list average annual returns over longer horizons ending December 31, 2004.

Fund Type	1 Year	3 Years	5 Years	10 Years	20 Years
Early seed stage	38.9%	-7.7%	-1.5%	44.7%	19.9%
Balanced	14.7	0.0	0.4	18.2	13.3
Later stage	10.4	-0.1	-4.7	15.4	13.7
All venture	19.3%	-2.9%	-1.3%	26.0%	15.7%
All buyouts	14.3	6.9	2.3	8.4	12.8
Mezzanine	8.0	3.1	2.9	6.9	9.3
All private equity	16.4%	3.7%	1.5%	12.7%	13.8%
Nasdaq	8.6%	3.7%	-11.8%	12.7%	13.8%
S&P 500	9.0	1.8	-3.8	10.2	11.7

Source: National Venture Capital Association (www.nvca.com).

A strong positive correlation exists between venture returns and returns on small stock mutual funds, which highlights the importance of a healthy public stock market for new ventures in general and for initial public offerings in particular. Because VCs prefer to exit via an IPO and because "recycled" returns at least partially flow into new venture investments, any decline in the market's appetite for new issues has an immediate negative impact on the venture capital industry.

EXIT STRATEGIES EMPLOYED BY VENTURE CAPITALISTS

VCs are not long-term equity investors. They seek to add value to a private company and then to harvest their investment. VCs use three principal methods to exit an investment: (1) through an initial public offering of shares to outside investors; (2) through a sale of the portfolio company directly to another company; or

.

Table 26.3U.S. Venture Capital andPrivate Equity Returnsby Fund Type andInvestment HorizonsInvestment HorizonReturns (AverageAnnual Pooled IRR) asof December 31, 2004

^{16.} While empirical studies have traditionally shown superior long-term returns for venture capital investments, this conclusion is challenged by Kaplan and Schoar (2005). These authors find average fund returns (net of fees) roughly equal to S&P 500 returns over the period 1980–2001, though established funds significantly outperform newer entrants. These findings are perplexing, since they question why investors are willing to commit massive resources to such risky investments when these yield no higher returns than a diversified portfolio of publicly traded equity.

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"If you make 10 investments as a fund, you're probably going to see 5 write-offs."

See the entire interview at SMARTFinance

(3) through selling the company back to the entrepreneur/founder (the redemption option, described in Fellers [2001]). IPOs are by far the most profitable and visible option for the venture capitalists. During 1980–2004, IPOs were executed on U.S. capital markets by 6,922 companies and raised \$492.2 billion.

Perhaps surprisingly, VCs do not exit immediately at the time of an IPO. Instead, they retain shares for several months or even years and then typically distribute shares back to the limited partners rather than sell the shares on the open market. The distributions usually occur after a period of sharply rising stock prices, and the average stock-price response to distribution announcements is significantly negative. The studies by Gompers and Lerner (1998b) and Bradley, Jordan, Yi, and Roten (2001) both document this tendency.

Concept Review Questions **5.** Why do venture capitalists almost always use *staged financing* and convertible securities to finance entrepreneurial companies?

6. Entrepreneurs often refer to venture capitalists as "vulture capitalists" due to the amount of equity they demand before investing. Do you think the standard venture capital pricing formula is a justifiable compensation for risk, or is it exploitative?

26.4 INTERNATIONAL MARKETS FOR VENTURE CAPITAL AND PRIVATE EQUITY

Although "classic" venture capital investment by privately financed partnerships has traditionally been a distinctly U.S. phenomenon, private equity financing has long been an established financial specialty in other developed countries, especially in Western Europe. Because Europe is the birthplace both of the industrial revolution and of modern capitalism, it is not surprising that a highly sophisticated method of funneling growth capital to private (often family-owned) businesses evolved there. In fact, private equity fund-raising in Europe compared quite well with that in the United States until 1997 and showed far less annual variability. The chief differences between European and American venture capital lie in (1) the principal sources of funds for venture capital investing, (2) the organization of the venture funds themselves, (3) the development stage of the portfolio companies able to attract venture financing, and (4) the principal method of harvesting venture capital investments. As we will see, these differences are all related and help explain why the volatility of venture capital investment in the United States is so much higher than in Europe.¹⁷

Before proceeding, we should point out a difference in the definition of the term *venture capital* in Europe and the United States. Whereas American commentators tend to refer to all professionally managed, equity-based investments in private, entrepreneurial growth companies as venture capital, European commentators apply the term only to early- and expansion-stage financing. Later-stage investments and funding for management buyouts are called *private equity investment* in Europe. Where necessary, we will maintain this distinction. But in general we will refer to both venture capital and private equity investment simply as *European venture capital*.

^{17.} The discussion in this section draws heavily on material presented in Black and Gilson (1998), Jeng and Wells (2000), and Megginson (2004).



EUROPEAN VENTURE CAPITAL AND PRIVATE EQUITY FUND-RAISING AND INVESTMENT

As in the United States, venture capital fund-raising and investment in Europe has grown rapidly since the mid-1990s. Figure 26.3 describes the growth in total private equity investment over the period 1989–2004. According to a survey of pan-European private equity and venture capital activity conducted for the European Private Equity & Venture Capital Association (EVCA) by PricewaterhouseCoopers, total investment grew from a stable level of about \in 5 billion per year during the 1989–1996 period to \in 25 billion in 1999 and \in 34.9 billion (invested in some 10,440 companies) in 2000. Disbursements dropped to \notin 24.3 billion during 2001 but then rebounded over the subsequent three years, hitting \notin 30.6 billion in 2004. Fund-raising has grown even more dramatically over the past seven years, rising from about \notin 5 billion during 1995 to nearly \notin 48 billion in 2000, before falling to \notin 27.5 billion during 2002 and remaining near that level during 2003 and 2004. Since the early 1980s, a cumulative total of some \notin 200 billion has been raised for investment in European private equity.

Historically, European venture capital has been funneled to different industries and different types of companies than in the United States, though this has been changing lately. As recently as 1996, less than one-fourth of European venture capital went into high-technology investments. In 2001, the fraction allocated to high-



Figure 26.3

European Private Equity Investment, 1989–2004 (in € billions) Source: European Private Equity and Venture Capital Association website (www.evca.com).

www.thomsonedu.com/finance/smartfinance

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Table 26.4European Private EquityInvestment by Industry,2000 and 2003

Sector

Consumer re Industrial pro Communicat Nonfinancial

Medical/health related

Other manufacturing

Chemicals and materials

Other electronics related

Computer related

Financial services

Biotechnology

Transportation

		WEB C
	2003	2000
elated	19.4%	18.5%
oducts and services	6.8	10.0
tions	16.9	13.8
l services	9.8	5.6

6.0

7.7

6.0

2.3

2.4

2.3

5.3

1.9

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Construction	3.4
Total value (€ millions)	€29,096

Source: European Venture Capital Association (www.evca.com).

tech industries topped 55 percent, but this dropped back to about one-third in 2003. Table 26.4 gives the industry breakdown of European private equity investments in technology for the years 2000 and 2003. As in the United States, a majority of European high-tech venture capital investment is funneled into computers and communications businesses.

In one important respect, venture capital funding patterns in Europe and the United States have long been similar, in that both are highly concentrated geographically. Fully half (50.6 percent) of year-2003's total investment was targeted at British companies. In second place behind Britain came France, Italy, and Germany, which received 15.9, 11.4, and 9.3 percent of European venture capital investment, respectively.

The Changing Sources of Funding for European Venture Capital. The sourcing of European venture capital funds differs from that of their U.S. counterparts, primarily in Europe's greater reliance on financial institutions. As shown in Figure 26.4, banks, insurance companies, and other corporate investors accounted for over one-third (35.0%) of all European venture funding in 2003, whereas pension fund money represents less than one-fifth (19.4%) of total fund-raising. Government agencies account for 6.8 percent of total capital raised.

For a mix of cultural and legal reasons, European venture capital funds are rarely, if ever, organized according to the U.S. model. Instead, funds are generally organized as investment companies under various national laws, and their approach to dealing with portfolio companies is much more akin to the reactive style of U.S. mutual fund managers than to the proactive style of America's venture capitalists. The relative lack of a vibrant entrepreneurial high-technology sector in Europe also hampers continental VCs' efforts to attract technologically savvy fund managers or entrepreneur/founders who wish to use their expertise to grow new firms.

European Venture Capital Investment by Stage of Company Develop-

ment. Partly for the reasons previously detailed, European venture capital has historically been less focused on early-stage investments than has America's. The

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7.9

9.3

13.3

2.9

1.8

2.9

1.2 3.9

1.8

€34,926



Figure 26.4 European Private Equity Raised by Type of Investor, Year 2003 (€ 29.096 billion total investment) Source: European Venture Capital Association (www.evca.com).



Figure 26.5

Distribution of European Private Equity Investment by Stage of Company Development, 1997–2004 *Source:* European Private Equity and Venture Capital Association (www.evca.com).

breakdown of European venture capital investment by stage of portfolio-company development for selected years between 1997 and 2004 is presented in Figure 26.5. Buyouts accounted for over 40 percent of European private equity investment during 1997 and 2000 and then surged to around 70 percent of total investment during 2003 and 2004. After spiking upward during the 1997–2001 period, early-stage companies

www.thomsonedu.com/finance/smartfinance

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now attract less than 7 percent of total investment. This figure is roughly half the fraction of U.S. venture capital investment targeted at early stage companies.

Investment Returns for European Venture Capital Investments. Yet another historical difference between U.S. and European venture capital was in the mostly disappointing returns European private equity investors earned. Figure 26.6 clearly shows that European private equity returns were mediocre during most years before 1996 but then surged over 20 percent from 1996 to 2001—and exceeded 40 percent during 2000. Since 2001, returns have been lackluster, as in the United States.

Exit Strategies of European Venture Capitalists. One of the greatest disappointments of European policymakers wishing to duplicate the success of the United States in high-technology development has been the continent's failure, until very recently, to establish a large, liquid market for the stock of entrepreneurial growth firms. Although several stock markets exist, and these collectively rival U.S. exchanges in total capitalization of listed companies, no European market emerged as a serious alternative to the Nasdaq or the NYSE in the United States as a market for initial public offerings until the German Neuer Markt, the pan-European Easdaq, and other markets, such the French Nouveau Marche, reached critical mass in the late 1990s. This had a direct impact on the exit strategies that European venture capitalists followed in harvesting their investments in portfolio companies.

Whereas IPOs have long been the preferred method of exit for U.S. venture funds, public offerings accounted for only 21 percent of European venture capital divestments in 1996 and for comparable fractions in earlier years. The number of European IPOs surged after these markets matured, especially the Neuer Markt, which had attracted over 300 listings by early 2000. Unfortunately, the Neuer Markt collapsed almost as fast as it took off. By January 2003, the market's total capitalization had fallen by over 95 percent from its March 2000 peak, amid a series of accounting



Figure 26.6

Investment Returns to Categories of European Private Equity Investment, 1984–2003 (5-year rolling internal rate of return) *Source:* Thomson Financial and Ernst & Young, as reported in Deborah Brewster, "Google IPO Offers Hope for Private Equity Funds," *Financial Times* (December 1, 2003), p. 27.

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scandals and great acrimony among entrepreneurs, exchange officials, and investors, and the market was officially shut down in June 2003. The European IPO market is now effectively closed to all but the most profitable and established firms, though a few European (and a great many Israeli) technology companies have been able to execute IPOs on U.S markets. Unfortunately, this is not a viable option for most entrepreneurial companies.

VENTURE CAPITAL MARKETS OUTSIDE THE UNITED STATES AND WESTERN EUROPE

The key venture capital markets outside of the United States and Western Europe are Canada, Israel, Japan, China, and India. The venture capital industries of Israel and Canada differ dramatically from those of other advanced countries. Canadian government policies led to its venture capital system being based on funds sponsored by labor unions. Rapid growth in Canada's VC market during the late 1990s, however, weakened the union funds' grip on VC funding, and total investment grew at a compound annual rate of 60 percent between 1994 and 2000. In 2000, Canada was the world's fifth largest recipient of VC financing, and it attracted almost as much investment (\$4.3 billion versus \$4.4 billion) as Germany, a nation five times as large. This preeminence was not to last, however; by 2003, Canada had fallen to 13th place overall, having attracted only \$1.0 billion in total PE investment.

In a relative sense, Israel has achieved the greatest success in venture capital and private equity, since it was the sixth largest recipient of PE funding in 2000 (receiving \$3.2 billion) and was the world's largest recipient when VC financing is expressed as a percent of GDP (3.17%). Even during 2003, Israel attracted \$770 million and ranked second overall (after Great Britain) when PE investment is expressed as a percentage of GDP (0.70%). Part of Israel's success can be traced to deliberate policy decisions in the early 1990s by the Likud government, which took concrete steps to commercialize defense-related technology developed with public funding. The influx of trained engineers and scientists from the former Soviet Union also helped, as did the pioneering steps taken by Israeli entrepreneurs to go public in the United States, since this opened a path to public markets others could and did follow.

Venture capital fund-raising and investment in Asia grew significantly between 1995 and 2000, though much less rapidly than in Europe or the United States because of a moribund VC industry in Japan. Elsewhere in Asia, growth was more robust, albeit from a low base. As described in Hamao, Parker, and Ritter (2000), Japan has a financial specialty referred to as "venture capital," but most of the firms involved are commercial or investment bank subsidiaries that make very few truly entrepreneurial investments. Venture capital shows little real sign of taking root in Japan, and the world's second largest economy attracted only \$7.19 billion (0.17% of GDP) in private equity funding during 2003. Although China is the fastest-growing major economy in the world, venture capital and private equity plays a very small role in its development, largely because the country lacks the basic legal infrastructure needed to support a vibrant VC market and because the Chinese stock markets are inefficient and highly politicized.

In many ways, India is the most interesting and promising private equity market in the world today. It ranked 17th overall in total investment during 2003, up from 19th in 2000, and the total amount invested (\$0.86 billion) was almost twice that of 2000. India's history as a former British colony gave it a common law legal system, multiple stock exchanges, and a heritage of English as the native tongue of its educated classes. India's rapid economic development since 1991 has been propelled

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COMPARATIVE CORPORATE FINANCE

Does a Nation's Legal System Influence the Size of Its Venture Capital Industry?

This table details how a country's legal system impacts the relative importance of venture capital investment, stock market capitalization and research and development spending for the 20 countries that received the most VC investment during 2003. Family of legal origin refers to which of the four main legal families (English common law, French civil law, German law, and Scandinavian law) the nation's commercial code is based on. Expressed as a fraction of GDP, venture capital investment was much higher in countries with legal systems based on English common law (0.51% of GDP) than in the three types of civil law countries (0.24%). A similar pattern is observed for stock market capitalization as a percent of GDP, where the average ratio is 112.8% of GDP in common law versus 62.1% in civil law countries, but not for R&D spending as a percent of GDP.

This ratio is actually higher in civil law countries, which suggests that a nation's legal system does not influence the relative amount of national output invested in research but does influence the propensity to channel research investment through venture capitalists.

Sources: GDP data, 2005 World Development Indicators, World Bank (http://www.worldbank.org/data/wdi2005); Venture capital investment data, Global Private Equity 2004, Pricewaterhouse-Coopers, (http://www.pwcmoneytree.com/exhibits/GPE_2004_Final _Presentation.pdf); Stock market capitalization data, World Federation of Exchanges (http://www.world-echanges.org), except France and Netherlands, whose 2004 data are from 2005 World Development Indicators, World Bank; R&D Spending data, OECD Statistics (http://www.oecd.org), except India, Israel, Indonesia, South Africa and China, whose data are from 2005 World Development Indicators, World Bank.

		Venture Capital and Private Equity Investment, 2003		Stock Market Capitalization as % of GDP	2002 R&D Spending as a %
Country	Family of Legal Origin	\$US billion	% of GDP	(Dec. 2003)	of GDP
United Kingdom	English common law	\$15.86	0.88%	137.1%	1.90%
Israel	English common law	0.77	0.70	62.5	5.10
Singapore	English common law	0.54	0.59	162.6	2.20
Australia	English common law	2.93	0.56	112.1	1.50
United States	English common law	59.20	0.54	130.3	2.82
South Africa	English common law	0.82	0.51	105.2	0.70
Korea	German law/civil	2.84	0.47	49.3	2.96
Finland	Scandinavian law/civil	0.52	0.32	105.2	3.40
Indonesia	French civil law	0.65	0.31	26.2	_
France	French civil law	4.98	0.28	77.1	2.30
Netherlands	French civil law	1.28	0.25	95.5	1.90
Italy	French civil law	3.56	0.24	41.9	1.10
Sweden	Scandinavian law/civil	1.19	0.23	57.3	4.27
Denmark	Scandinavian law/civil	0.48	0.23	55.8	2.50
Spain	French civil law	1.57	0.19	86.6	0.96
Japan	German law/civil	7.19	0.17	68.7	3.10
India	English common law	0.86	0.14	88.5	0.80
Canada	English common law	1.00	0.12	103.8	1.85
Germany	German law/civil	2.91	0.12	44.9	2.50
China	German law/civil	1.57	0.12	36.2	1.20
Average, English co Average, all civil la	ommon law countries w countries		0.51% 0.24%	112.8% 62.1%	2.11% 2.38%

both by the macroeconomic and market-opening reforms adopted that year and by relatively large inflows of foreign investment, which were in turn attracted by India's vast potential and by the quality of the graduates of its elite universities and technical institutes. Crucially, much of India's growth has been in the IT sector, which is the traditional target of true venture capital investment. For all these reasons, India should become one of the five leading venture capital markets by the end of this decade.¹⁸

What about venture capital investment in emerging markets besides China and India? A paper by Lerner and Schoar (2003) presents an empirical analysis of the transaction structures employed by private equity investors in developing countries. Using a sample of 210 transactions, they find that convertible securities are rarely employed in developing countries and that investors are much more likely to invest in traditional, low-tech industries in emerging markets than are American venture capitalists. Lerner and Schoar also find that a nation's legal system significantly impacts the transaction structure chosen for investments, with investors in countries with French or socialist legal systems showing much greater determination to achieve majority voting control than in English common law countries.

7. Why do you think European governments and stock exchanges are so keen to promote a vibrant entrepreneurial sector? Can you think of any competitive advantages that might accrue to Europe due to its relatively late start in developing IPO markets?

8. What are some of the competitive strengths and weaknesses of venture capital as practiced in Europe, Japan, and Canada compared to that in the United States?

9. How has the European venture capital industry changed over the past five years? Do you think these changes have made it more or less competitive and efficient?

Concept Review Questions

26.5 SUMMARY

- Entrepreneurial finance requires specialized financial management skills because entrepreneurial growth companies are unlike other private or publicly traded companies. In particular, EGCs must finance much higher asset growth rates than other firms and must tap external financial markets much more frequently.
- In addition to providing risk capital to entrepreneurial growth firms, professional venture capitalists (VCs) provide managerial oversight coupled with technical and business advice, assistance in developing and launching new products, and valuable help recruiting experienced management talent.
- U.S. venture capital investments are highly concentrated both geographically and industrially. Furthermore, the most successful venture capital funds are almost always organized as limited partnerships and follow distinctive investment strategies (staged investment) using unique financial instruments (convertible preferred stock).
- U.S. venture capitalists endeavor to make intermediate-term (of 3–7 years), highrisk investments in entrepreneurial growth firms and then to exit these invest-

^{18.} Although the total amount of venture capital investment in Australia is too small—given the size of the economy—to place it among the top 20 recipient countries, the Australian venture capital industry is very efficient and employs state-of-the-art contracting techniques, as described in Cumming, Fleming, and Suchard (2005).

WEB CHAPTERS

ments either by selling the portfolio companies to another firm or (preferably) by executing an initial public offering.

- Phenomenal growth in venture capital fund-raising and investment has occurred since the mid-1990s in the United States, Western Europe, and certain Asian countries but not in Japan or most developing countries. The two largest venture capital markets, the United States and Europe, have seen significant convergence in contracting practices, investment patterns, and returns in recent years.
- The funding of European venture capital is moving toward greater reliance on pension funds (rather than commercial banks), and a higher fraction of European venture capital investment is being targeted toward early-stage investment than in the past. However, the majority of Europe's total investment is still being targeted toward management buyouts rather than high technology.
- After a long period of relative underperformance, returns on European private equity investment have also increased steadily in recent years. However, the recent collapse of Germany's Neuer Markt has at least temporarily closed what had become the most promising exit route for European venture capitalists.
- Although Canada and Israel have had great success in venture capital funding and investment, growth in venture capital in Asia has lagged that of Europe and North America. Venture capital investment in developing countries has been growing from its low base during recent years.

INTERNET RESOURCES

Note: For updates to links, please go to the book's website at http://smart.swcollege.com.

- http://www.nvca.com—Website of the National Venture Capital Association, which provides a wide range of data and reports about the U.S. venture capital industry, much of it strikingly current
- http://www.pwcmoneytree.com—Website of PricewaterhouseCoopers MoneyTreeTM, which presents details about the company's quarterly and annual venture capital surveys and offers the company's electronic publication, *Global Private Equity Report*, which can be downloaded
- http://www.evca.com—Website of the European Venture Capital & Private Equity Association, which presents detailed information about Europe's venture capital industry and provides numerous reports about the European venture capital scene

KEY TERMS

angel capitalists cancellation option corporate venture capital funds demand registration rights entrepreneurial finance entrepreneurial growth companies (EGCs) financial venture capital funds institutional venture capital funds negative covenants ownership right agreements participation rights positive covenants ratchet provisions redemption option repurchase rights small business investment companies (SBICs) staged financing stock option plans venture capital venture capital limited partnerships

CHAPTER 26 ENTREPRENEURIAL FINANCE AND VENTURE CAPITAL

QUESTIONS

- **26-1.** List and describe the key financial differences between entrepreneurial growth companies and large publicly traded firms.
- **26-2.** How does the financing of entrepreneurial growth companies differ from that of most firms in mature industries? How does the concept of *bootstrap finance* relate to this difference?
- **26-3.** What is an *angel capitalist*? How do the financing techniques used by angels differ from those employed by professional venture capitalists?
- **26-4.** Distinguish between the four basic types of venture capital funds. Which type has emerged as the dominant organizational form? Why?
- **26-5.** What are some of the common characteristics of those entrepreneurial growth companies that are able to attract venture capital investment? In which industries and states is the majority of venture capital invested?
- **26-6.** What is meant by early-stage and later-stage venture capital investment? What proportions of venture capital have been allocated between the two in recent years? Which stage requires a higher expected return? Why?
- **26-7.** What are the responsibilities and typical payoff for a general partner in a venture capital limited partnership?
- **26-8.** Define *staged financing*. Why is this an efficient risk-minimizing mechanism for venture capitalists?
- **26-9.** Distinguish between *positive covenants* and *negative covenants* in venture capital investment contracts. List and describe some of the more popular covenants found in these contracts.
- **26-10.** What is the most popular form of financing (or security type) required by venture capitalists in return for their investment? Why is this form of financing optimal for both the entrepreneur and the venture capitalist?
- **26-11.** List the major differences between venture capital financing in the United States and Western Europe. What major changes have been occurring recently in the European venture capital industry.
- **26-12.** Why is a vibrant IPO market considered vital to the success of a nation's venture capital industry? What impact is the near collapse of Germany's Neuer Markt likely to have on the European venture capital industry?
- **26-13.** Describe the recent levels of venture capital activity in Canada, Israel, China, and India. What is the outlook for each of them?

PROBLEMS

Venture Capital Financing in the United States

26-1. Access the National Venture Capital Association website at http://www.nvca.com, and update Tables 26.1 and 26.3 as well as Figures 26.1 and 26.2, using the most recent data available. What general trends do you see regarding sources of venture capital funding and patterns of investing from this website and its links?

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- **26-2.** The venture capital fund Techno Fund II made a \$4 million investment in Optical Fibers Corporation five years ago and in return received 1 million shares representing 20 percent of Optical Fibers' equity. Optical Fibers is now planning an initial public offering in which it will sell 1 million newly created shares for \$50 per share. Techno has chosen to exercise its demand registration rights and will sell its shares—alongside the newly created shares—in Optical Fibers' IPO. The investment banks underwriting Optical Fibers' IPO will charge a 7 percent underwriting spread, so both the firm and Techno Fund II will receive 93 percent of the \$50 per-share offer price. Assuming the IPO is successful, calculate the compound annual return that Techno will have earned on its investment?
- **26-3.** High-Tech Fund III made a \$3 million investment in Internet Printing Company (IPC) six years ago and received 2 million shares of series A convertible preferred stock. Each of these shares is convertible into two shares of IPC common stock. Three years later, High-Tech III participated in a second round of financing for IPC and received 3 million shares of series B convertible preferred stock in exchange for a \$15 million investment. Each series B share is convertible into one share of IPC common stock. Internet Printing Company is now planning an IPO, but before this the company will convert all its outstanding convertible preferred shares into common stock. After conversion, IPC will have 20 million common shares outstanding and will create another 2 million common shares for sale in the IPO. The underwriter handling IPC's initial offering expects to sell these new shares for \$45 each but has prohibited existing shareholders from selling any of their stock in the IPO. The underwriter will keep 7 percent of the offer as an underwriting discount. Assume that the IPO is successful and that IPC shares sell for \$60 each immediately after the offering.
 - **a.** Calculate the total number of IPC common shares that High-Tech III will own after the IPO. What fraction of IPC's total outstanding common stock does this represent?
 - **b.** Using the post-issue market price for IPC shares, calculate the (unrealized) compound annual return High-Tech III earned on its original and subsequent investments in IPC stock.
 - c. Now assume that the second-round IPC financing had been made under much less favorable conditions and that High-Tech III paid only \$1 million instead of \$15 million for the 3 million series B shares. Assuming that all the other features of IPC's initial offering described earlier hold true, calculate the (unrealized) compound annual return High-Tech III earned on this second investment in IPC stock.
- **26-4.** Suppose that 5 out of 10 investments made by a VC fund are a total loss, meaning that the return on each of them is -100 percent. Of the 10 investments, 3 break even, earning a 0 percent return. If the VC fund's expected return equals 50 percent, what rate of return must it earn on the two most successful deals to achieve a portfolio return equal to expectations?
- **26-5.** Suppose that 6 out of 10 investments made by a VC fund are a total loss, meaning that the return on each of them is -100 percent. Of the remaining investments, three break even, earning a 0 percent return, while one investment pays off spectacularly and earns a 650 percent return. What is the realized return on the VC fund's overall portfolio?
- **26-6.** An entrepreneur seeks \$4 million from a venture capitalist. They agree that the entrepreneur's venture is currently worth \$12 million, and when the company goes public in an IPO in three years it is expected to have a market capitalization of \$70 million. Given the company's stage of development, the VC requires a 40 percent return on investment. What fraction of the firm will the VC receive in exchange for its \$4 million investment?
- **26-7.** You are seeking \$1.5 million from a venture capitalist to finance the launch of your online financial search engine. You and the VC agree that your venture is currently

worth \$3 million and, when the company goes public in an IPO in five years, it is expected to have a market capitalization of \$20 million. Given the company's stage of development, the VC requires a 50 percent return on investment. What fraction of the firm will the VC receive in exchange for its \$1.5 million investment in your company?

- **26-8.** An entrepreneur seeks \$10 million from a VC fund. The entrepreneur and fund managers agree that the entrepreneur's venture is currently worth \$25 million and that the company is likely to be ready to go public in five years. At that time, the company is expected to have net income of \$7.5 million, and comparable firms are expected to be selling at a price/earnings ratio of 30. Given the company's stage of development, the venture capital fund managers require a 50 percent compound annual return on their investment. What fraction of the firm will the fund receive in exchange for its \$10 million investment?
- **26-9.** An entrepreneur seeks \$12 million from a VC fund. The entrepreneur and fund managers agree that the entrepreneur's venture is currently worth \$30 million and that the company is likely to be ready to go public in four years. At that time, the company is expected to have net income of \$6 million, and comparable firms are expected to be selling at a price/earnings ratio of 25. Given the company's stage of development, the venture capital fund managers require a 40 percent compound annual return on their investment. What fraction of the firm will the fund receive in exchange for its \$12 million investment?

International Markets for Venture Capital and Private Equity

26-10. Access the European Private Equity and Venture Capital Association website at http:// www.evca.com and update Table 26.4 and Figures 26.3, 26.4, and 26.5, using the most recent data available. What general trends do you see regarding sources of venture capital funding and patterns of investing from this website and its links?