Understanding Alternative Investments:

Private Equity Performance Measurement and Its Role in a Portfolio

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Executive Summary

This paper examines the performance characteristics of private equity investments, using return data from the National Venture Capital Association database. Our study indicates that private equity investments are far riskier than public equity investments. In addition to the conventional risks of the securities markets, private equity investments entail significant and unique risks, including a long investment horizon, rigid liquidity constraints, and high bankruptcy rates among portfolio companies. There is a widespread perception that successful private equity investments can provide both exceptional returns and enhanced portfolio diversification. Our findings indicate that superior performance is possible, but that returns can be difficult to realize. Our findings also suggest that diversification should not be considered a major benefit of private equity investing. Rather, private equity should be treated as but one small component of a portfolio's allocation to all equity investments, private *and* public.

Understanding Private Equity

The organized private equity market has grown rapidly since the issuance of the "prudent expert rule" by the U.S. Department of Labor in 1978, which allowed pension funds and other institutions to invest in private equity. In broad terms, this asset class includes the unregistered securities of private and public companies. Private equity investments typically occur through a limited partnership that is managed by a general partner and largely funded by investors who constitute limited partners. The major categories of private equity investing include venture capital funds, buyout funds, mezzanine funds, and distressed securities funds. These vehicles are defined in Table 1, on page 2.

Reported private equity returns often grossly *understate* the returns produced by successful private equity investments and grossly *overstate* their diversification benefits.

Despite a widespread perception that successful private equity investments can provide both exceptional returns and enhanced portfolio diversification, our research indicates that these conclusions reflect an incomplete understanding of the nature of private equity returns. In fact, these vehicles can offer both *more* and *less* opportunity to investors than the industry's limited and idiosyncratic performance data suggest. Reported private equity returns often grossly *understate* the returns produced by successful private equity investments and grossly *overstate* their diversification benefits.

This paper examines the life cycle of private equity investments and the measures used to evaluate their performance, with the aim of enhancing understanding of private equity's risk and return characteristics. Investors can use this analysis to make better-informed decisions about the role of private equity in their asset allocations. We also review the pros and cons of the two primary private-equity investment vehicles: limited partnerships and funds of funds—funds that own shares in several different private equity partnerships.

Table 1 Major Categories of Private Equity Funds

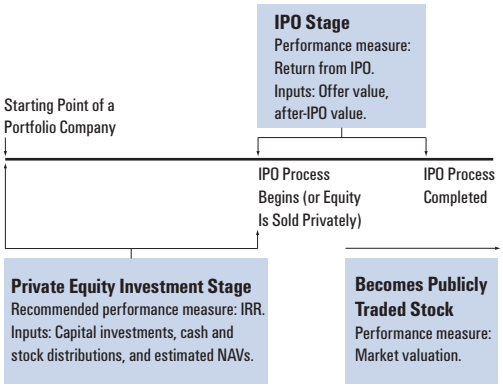
Fund Type	Definition
Venture Capital Fund	Fund that provides equity capital to privately owned businesses in early stages of development. A typical portfolio company has limited or no access to public finance or bank loans.
Seed-Stage Fund	Venture capital fund that invests in companies that have not yet fully established commercial operations. Many venture capital funds are also involved in continuing product research and development.
Early-Stage Fund	Venture capital fund that invests in companies for their product development, initial marketing, manufacturing, and sales activities.
Balanced Fund	Venture capital fund that invests in companies in a variety of stages of development.
Later-Stage Fund	Venture capital fund that invests in companies that are making and shipping products, and increasing their sales volume.
(Leveraged) Buyout Fund	Fund that invests in more-established companies with positive cash flows for purposes of acquisition (utilizing a significant amount of debt).
Small Fund	$0–$250 million
Medium Fund	$250–$500 million
Large Fund	$500–$1,000 million
Mega Fund	$1 billion plus
Mezzanine Fund	Fund that provides venture financing to portfolio companies shortly before a public offering.
Distressed Securities Fund	Fund that invests in securities, principally debt instruments, of financially troubled corporations.

Source: Venture Economics/NVCA.

The Private Equity Life Cycle

Measuring the returns from private equity is complicated by the very nature of the asset class. For much of the life of a private equity investment, there is no market price for the holding. The stages of a successful investment in a portfolio company are illustrated in Figure 1. Until the beginning of the initial public offering (IPO) process or until the company is purchased privately by a strategic buyer, an investment's value is estimated by the manager of the fund that holds the investment. Not until the IPO is completed—turning the private equity into public equity—is there a reliable, market-based price for the investment.

Figure 1 Life of a Successful Investment in a Portfolio Company



Notes: IRR, internal rate of return; NAV, net asset value.

Although the National Venture Capital Association (NVCA) has created guidelines for evaluating the net asset value (NAV) of private equity investments, the group has no legal power to enforce compliance. (The NVCA guidelines are summarized in Table 2.) A more significant problem is that NAVs can be distorted. For instance, fund managers engage in stale pricing, by which they assign old values to investments even if evidence of a change in value exists; or they practice managed pricing, by which they price their private investments subjectively.[1]

1. Anson (2002) presented empirical evidence of both stale and managed pricing in venture capital evaluation. Contrary to expectations, Anson reported that managers "wrote down" private equity valuations more quickly than they marked them up. He concluded that, in the long run, fund managers exhibit conservative pricing behavior.

Table 2 Highlights of NVCA Net-Asset-Value Guidelines for Private and Restricted Public Equity

Status of Portfolio Company	Operation/ Liquidity Status	Recommended Valuation
Private	Not generating cash.	Cost of investment.
	Generating cash.	30% discount to the P/E ratio of similar companies on the public equity market.
Public (restricted securities)	During the restricted period.	Start with a 30% discount to the P/E ratio of similar public companies and eliminate discount proportionately as the restricted period lapses.
	Out of restricted period.	10% discount to market price due to low liquidity.

Note: P/E, price/earnings.
Source: Venture Economics/NVCA, October 2002.

Private Equity: Essential Characteristics

- **Private equity offers potentially extraordinary returns, but the caveats are many.** Private equity investments *can* produce striking gains. However, because of the unique nature of private equity's return distributions, industry data could understate this potential. Indeed, the greatest returns in this asset class are typically realized when the *private* equity becomes *public* equity. Even then, however, securities regulations can make it difficult to realize these returns in a timely—and profitable—manner.
- **Private equity provides minimal diversification benefits.** Although private equity returns appear to have low correlations with the public equity markets, those apparently low correlations largely reflect estimated returns that can't be realized. The returns that *can* be realized are in fact highly correlated with the performance of the public stock markets.
- **Private equity is very risky**. In addition to the conventional risks of the financial markets, private equity's unique risks include a long (and unknowable) investment horizon, liquidity constraints, and a high bankruptcy rate among portfolio companies.
- **Private equity is a closely related complement of, not an alternative to, public equity.** The *opportunity* to realize returns from private equity is highly correlated with the performance of the public stock market, suggesting that private equity is not an "alternative asset" but a unique component of the overall equity market, including both private and public equity.

Fund NAVs and any distributions can be used to determine an investment's total return for any one specific period in the same way that a one-period return is calculated for public equities. Because there is no sound basis for estimating reinvestment returns of stock and cash distributed by private equity funds, however, these one-period returns can't be compounded to create a picture of longer-term performance. A private equity fund's cash and stock distributions cannot be reinvested in the same fund at the NAV that is recorded on the day those distributions are made.

Private Equity Performance Standards: IRR and DPI

To measure a private equity fund's return over multiple periods without compounding one-period returns, we use the *internal rate of return* (IRR). Even this measure has a limitation, however. IRR assumes that cash distributions in all periods will have the same rate of return as the initial investment. Among the performance data published by Venture Economics/NVCA, the most watched measure is the cumulative IRR since inception,[2] the standard recommended by the Association for Investment Management and Research. The IRR is calculated for each fund as cash inflow and cash outflow to the investors on a year-to-year basis, as well as the estimated value of the portfolio's remaining companies. Although the Venture Economics/NVCA database is the most comprehensive one available, it has significant drawbacks: the data are self-reported, reporting is optional, and the data may not always include the same group of funds. Also, Venture Economics/NVCA updates current and historical data as they become available, which can lead to significant "revisions of history."

2. The cumulative IRR since inception is calculated as the solution of the following equation:

$$-I_0 + \sum_{t=0}^{T} \frac{C_t}{(1 + IRR_T)^t} + \frac{NAV_T}{(1 + IRR_T)^T} = 0,$$

where I_0 is the initial investment, C_t is the *net* distribution at time t, and NAV_T is the estimated net asset value if there are still illiquidated holdings.

Buyout/Mezzanine Funds versus Venture Capital Funds

According to pooled averages from NVCA, buyout/mezzanine funds produced higher returns than venture capital funds for the periods ended December 31, 1985, through December 31, 2000. Before 1994, even the top 20% of venture capital funds failed to perform as well as the same group of buyout/mezzanine funds. Since 1995, the top-quintile venture capital funds have reported impressive returns, but the upper and median venture capital funds still fall behind those of the same groups of buyout/mezzanine funds. Because the portfolio companies in buyout/mezzanine funds tend to be more established, with many generating free cash flow and earning profits, buyout/mezzanine funds may be more appealing to relatively conservative investors.

Tables 3 and 4 show the cumulative IRR since inception for venture capital and buyout investments in the United States for periods ended December 31, 1985, through June 30, 2002. The five columns at the tables' right present average fund performance by quintile. For the period ended June 30, 2002, for example, the 20% of venture capital funds with the worst performance ("Minimum") lost –100% of their value. During the same period, by contrast, the 20% of funds with the best performance ("Maximum") earned an average cumulative IRR of 722.3% (see Table 3).

Also presented in Tables 3 and 4 are three average returns for the entire sample size in each period: simple average, capital weighted average, and pooled average. The pooled average treats all funds as a single fund by summing their annual investments and cash and stock distributions together. This total-distribution flow series is then used to calculate the internal rate of return. The pooled average is the most meaningful measure of performance for a fund of private equity funds. The capital weighted average is more influenced by the estimated NAVs. The average and standard deviation figures at the bottom of the tables are the statistics for the periods ended December 31, 1985, through June 30, 2002.

Table 3 Performance of Venture Capital Investments in the United States: Periods Ended December 31, 1985, through June 30, 2002

					Average Returns by Quintile				
Cumulative IRR: Period Ended*	Number of Funds Reporting Results	Average Return	Capital Weighted Average Return	Pooled Average Return	First (Highest)	Second	Third	Fourth	Fifth (Lowest)
12/31/1985	268	4.9%	6.2%	13.7%	75.2%	9.4%	0.6%	0.0%	–53.4%
12/31/1986	311	5.3	6.1	12.9	136.4	10.4	1.1	0.0	–56.8
12/31/1987	383	4.7	5.4	12.7	90.8	9.0	1.5	–0.5	–67.9
12/31/1988	430	4.3	4.2	10.9	152.2	8.2	1.1	–0.6	–49.2
12/31/1989	484	3.0	3.7	9.8	74.2	8.4	2.1	–1.5	–93.9
12/31/1990	517	2.7	3.1	8.4	74.1	7.9	1.6	–2.7	–91.3
12/31/1991	534	5.1	7.5	9.8	82.3	10.6	3.6	–1.1	–46.8
12/31/1992	561	4.7	6.0	10.0	74.1	11.3	4.1	–0.4	–99.5
12/31/1993	595	6.0	7.8	10.9	115.2	12.6	5.1	–0.5	–99.3
12/31/1994	638	5.6	5.4	11.0	117.6	13.2	5.0	–0.4	–99.0
12/31/1995	685	11.5	20.1	13.0	1,218.9	15.9	6.9	0.0	–92.3
12/31/1996	718	11.8	15.5	14.1	470.7	17.4	8.4	1.0	–99.6
12/31/1997	774	12.1	15.4	14.6	498.2	17.3	8.5	0.5	–100.0
12/31/1998	841	12.9	11.8	14.8	472.3	18.3	8.2	0.1	–96.6
12/31/1999	916	38.3	61.0	19.0	1,341.0	28.8	11.6	2.2	–100.0
12/31/2000	1,011	24.6	22.8	19.3	809.5	28.0	10.8	0.9	–100.0
12/31/2001	1,058	14.5	3.6	17.5	726.2	19.7	7.2	–2.0	–100.0
6/30/2002	1,065	13.2	1.6	16.8	722.3	18.2	6.1	–3.3	–100.0
12/31/1985– 6/30/2002:									
• Average Return		10.3	11.5	13.3	402.8	14.7	5.2	–0.5	–85.9
• Standard Deviation		8.9	13.8	3.3	410.6	6.3	3.5	1.3	20.4

Notes: IRR, internal rate of return. IRRs are reported from each fund's inception through the period end date.
Source: Venture Economics/NVCA, October 2002.

Table 4 Performance of Buyout/Mezzanine Investments in the United States: Periods Ended December 31, 1985, through June 30, 2002

					Average Returns by Quintile				
Cumulative IRR: Period Ended*	Number of Funds Reporting Results	Average Return	Capital Weighted Average Return	Pooled Average Return	First (Highest)	Second	Third	Fourth	Fifth (Lowest)
12/31/1985	26	4.2%	4.6%	20.1%	42.4%	15.2%	0.0%	0.0%	-32.3%
12/31/1986	42	20.2	25.5	30.0	238.5	28.6	3.2	0.0	-100.0
12/31/1987	68	13.4	-20.5	28.5	254.4	21.6	1.8	0.0	-100.0
12/31/1988	87	22.6	25.2	33.4	324.2	27.4	6.6	0.0	-81.7
12/31/1989	118	15.3	24.4	32.3	246.0	21.8	6.8	0.0	-92.3
12/31/1990	136	11.5	9.0	25.0	244.5	21.9	4.6	0.0	-91.0
12/31/1991	144	11.4	10.4	22.3	244.1	20.1	6.4	0.0	-96.8
12/31/1992	166	9.1	7.5	19.9	243.9	18.6	6.2	0.0	-100.0
12/31/1993	191	21.7	21.0	21.4	732.6	22.8	9.1	0.1	-96.4
12/31/1994	218	13.1	11.8	20.3	243.9	19.5	9.1	0.3	-57.7
12/31/1995	240	11.8	12.2	19.7	243.9	19.3	10.8	0.9	-100.0
12/31/1996	278	13.4	12.8	20.1	360.4	22.9	12.3	0.1	-100.0
12/31/1997	327	14.2	20.1	20.1	243.9	23.5	12.1	0.0	-99.5
12/31/1998	385	10.9	4.6	19.4	282.1	21.4	10.2	-0.3	-100.0
12/31/1999	430	15.5	14.4	19.6	444.7	23.4	11.9	0.0	-99.9
12/31/2000	489	10.8	7.5	17.8	243.9	20.1	9.1	-1.3	-100.0
12/31/2001	519	5.7	-1.7	14.0	243.9	16.9	6.4	-6.0	-98.7
6/30/2002	527	5.2	-1.0	12.9	243.9	15.9	5.1	-6.6	-94.2
12/31/1985–6/30/2002:									
• Average Return		12.8	10.4	22.0	284.5	21.2	7.3	-0.7	-91.1
• Standard Deviation		5.0	11.0	5.5	131.6	3.4	3.5	2.0	17.5

Notes: IRR, internal rate of return. IRRs are reported from each fund's inception through the period end date.
Source: Venture Economics/NVCA, October 2002.

Although these internal rates of return offer a basis for evaluating different funds' long-term performance within a universe of private equity funds, they are not appropriate standards of comparison with the public equity markets. First, these cumulative IRRs are the yield rates for the funds since their inception to a certain date, including funds with different inception dates; they are not associated with a specific time period, such as the five years ended December 31, 1985. These cumulative IRRs could include, for instance, one fund's ten-year performance and another fund's one-year performance. Second, they may be heavily influenced by *estimated, and thus less reliable*, NAVs, depending on the status of the funds.

To compare the *realized* long-term return of private equity with that of public equity, it is more appropriate to use *distribution to paid-in ratio* (DPI) since inception. DPI is defined as total distributions divided by total capital invested. For example, Table 5 (see page 6) shows that by the end of 2001, the 61 private equity funds that began operations in 1985 had distributed cash and stock equal to 2.5 times the amount of money invested in the funds since their inception. By contrast, a dollar invested in the Dow Jones Industrial Average would have increased by more than 13-fold over the period.

DPI does not assign a "time value" to distributions or investments made at different stages of a fund's life. A dollar invested ten years ago is treated the same as a dollar invested ten days ago. DPI basically measures two things: the realized return assuming no reinvested distributions; and the number of years it has taken the fund to provide this cumulative return. DPI is considered the most conservative measure, since it excludes subjective evaluation of NAV and assumes no reinvestment returns from distributions—the two factors that make the IRR measure less reliable. In short, DPI provides a "clean" measure of the return of private equity funds.

Table 5 DPI Ratios by "Vintage Year" for U.S. Private Equity and the Cumulative Value of One Dollar Invested in Selected Public Equity Indexes at the End of 2001

Vintage Year	No.	Private Equity Capital Weighted Average	Private Equity Pooled Average	Dow Jones Industrial Average	Nasdaq Composite Index	Russell 1000 Index	Russell 2000 Index
1985	61	2.5	2.5	13.4	9.3	10.5	6.4
1986	59	2.5	2.4	10.0	7.0	7.9	4.9
1987	94	1.8	1.8	7.9	6.5	6.7	4.6
1988	72	1.7	1.8	7.5	6.8	6.5	5.1
1989	83	2.0	2.0	6.4	5.8	5.6	4.1
1990	42	2.0	2.0	4.9	4.8	4.3	3.5
1991	26	1.8	2.0	4.9	5.8	4.5	4.3
1992	50	1.7	1.8	3.9	3.7	3.4	3.0
1993	67	1.8	1.8	3.7	3.2	3.1	2.5
1994	67	1.6	1.5	3.1	2.7	2.8	2.1
1995	74	1.2	1.2	3.0	2.8	2.8	2.2
1996	70	1.3	1.4	2.2	2.0	2.0	1.7
1997	107	0.7	0.7	1.7	1.6	1.6	1.4
1998	138	0.3	0.3	1.4	1.3	1.2	1.2
1999	127	0.1	0.1	1.1	0.9	1.0	1.2
2000	142	0.1	0.1	0.9	0.5	0.8	1.0
2001	64	0.0	0.0	0.9	0.8	0.9	1.0

Sources: Venture Economics/NVCA and The Vanguard Group, Inc., October 2002.

Table 5 shows the reported DPIs for the groups of funds by their "vintage years."[3] Also presented are the final values at the end of 2001 for a dollar invested in different public equity markets at the beginning of the vintage years. As you would expect, the longer-established funds have returned more of—and more on—their investments.

On average, it took about five to six years for a private equity fund to make distributions equal to the cumulative investments in the funds, and about ten years to make distributions equal to twice the original investments. A comparison of DPI figures with the cumulative values of public equity benchmarks by vintage year seems to suggest that an index fund with a reasonable fee can easily beat an average private equity fund. It is important to note, however, that unlike the total returns of public equity benchmarks, the DPI figures include no reinvestment of fund distributions.

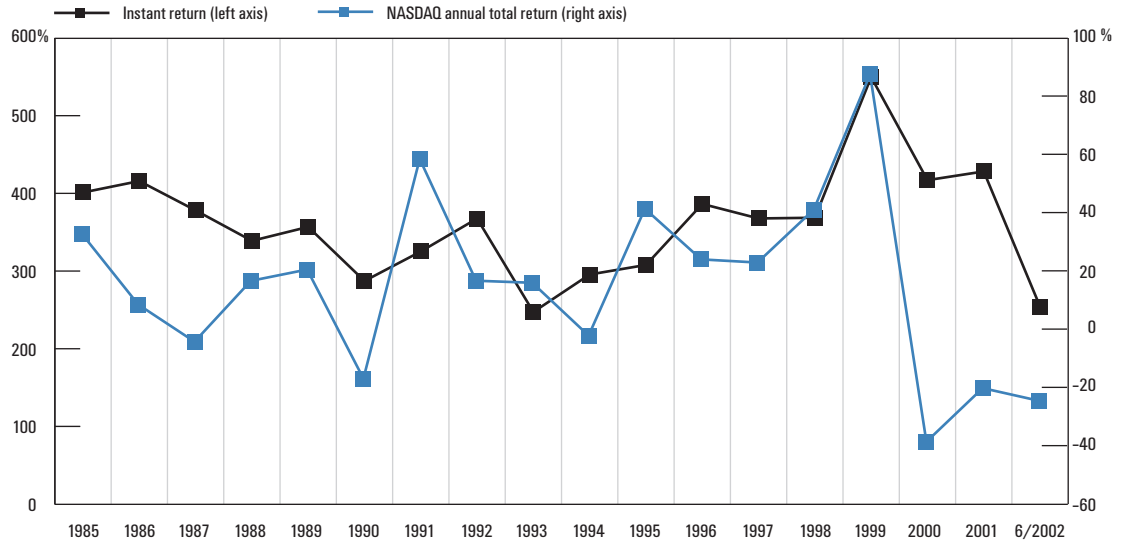
IPOs: The Missing Link

Understanding the characteristics of private equity valuation, IRR, and DPI is critical to making informed portfolio decisions about private equity, but in a sense these figures are really a side show. Private equities' main event is the *initial* public offering, though some portfolio companies are sold to strategic buyers privately. When *private* equity becomes *public* equity, the returns can be tremendous. Although private equity funds distribute some cash, most of their returns depend on stock distributions that typically occur when portfolio companies are sold to the investing public.

One measure of the IPO's significance is the *instant return rate*, the change in price between a portfolio company's IPO offer price and its post-IPO offer price at the end of the first trading day. Figures 2 and 3 display instant return rates of IPOs for the portfolio companies in venture capital funds and in buyout funds, respectively, from 1985 through June 2002. From 1985 through June 2002, the average instant return from venture capital IPOs was more than 300% (Figure 2). The instant return of buyout IPOs, by contrast, was not impressive, except for a few years in the later 1980s (Figure 3). In a private equity fund, venture capital IPOs' potential as a source of enormous return usually is not fully reflected by the IRR and the DPI, because these calculations incorporate the value of the remaining holdings in a private equity fund that have not yet gone public.

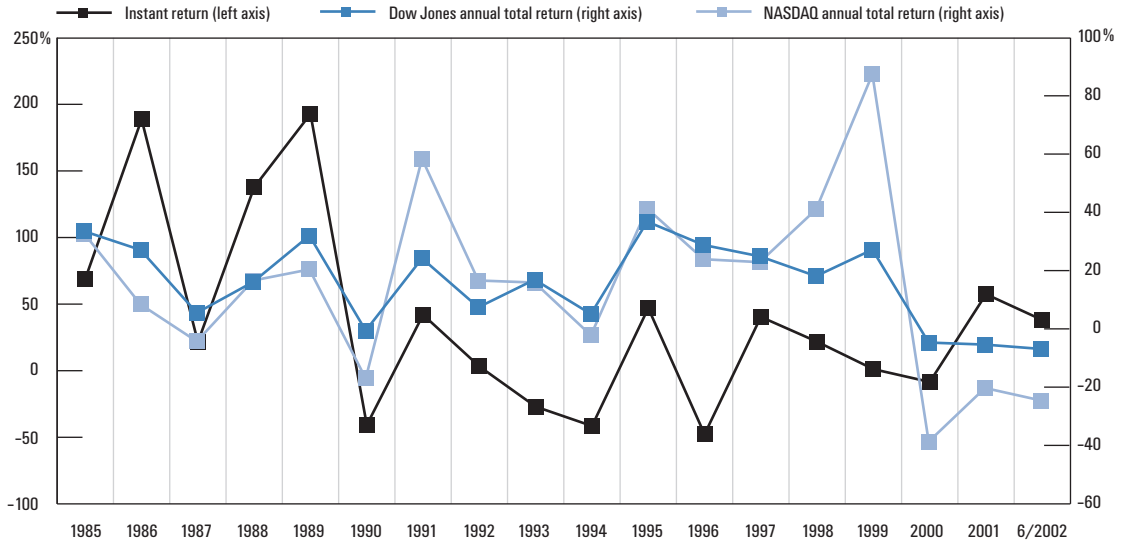
3. The year of fund formation and the first commitment of capital.

Figure 2 Covariation of Pooled Instant Rates of Return of Venture Capital IPOs in the United States with NASDAQ Annual Total Returns: 1985–June 2002



Notes: Data for total IPO offer value and post-offer value do not include every deal. Pooled instant rate of return: Sum of IPO closing prices for first trading day minus the sum of IPO offer values, divided by the sum of IPO offer values.
Source: Venture Economics/NVCA. October 2002.

Figure 3 Covariation of Pooled Instant Rates of Return of Buyout IPOs in the United States with Dow Jones and NASDAQ Total Returns: 1985–June 2002



Notes: Data for total IPO offer value and post-offer value do not include every deal. Pooled instant rate of return: Sum of IPO closing prices for first trading day minus the sum of IPO offer values, divided by the sum of IPO offer values.
Source: Venture Economics/NVCA, October 2002.

Paradoxically, being a long-term investor in a private equity fund may be a condition necessary to realize significant "instant" returns, simply because shares in the portfolio companies are not widely available to the investing public at the IPO's offer price.

More Performance Caveats

In theory, it may be possible to measure the total return of a portfolio company from its founding to its eventual trading in the public stock market, but to our knowledge, such data do not exist. Even if such data were available, the calculation would still fail to reflect the implications of SEC Rule 144, which requires that all restricted/controlled shares (which would include most private equity portfolio companies) have a one-year holding period before they can be sold to the public without full registration. And after the one-year period, there are restrictions on the volume of shares that can be sold. In addition to the SEC regulation, the investment bankers underwriting the IPO generally enter into contractual lockups that preclude the private equity fund from selling its shares for 180 days post IPO. Finally, the market's recognition that eager sellers are most likely waiting in the wings to unload their IPO shares can depress a stock's value in the period after its IPO.

Indeed, there is evidence that venture capital companies underperform major stock market benchmarks over a longer time horizon (five to ten years). The Post Venture Capital Index (PVCI), published by NVCA, consistently lags major market indexes such as the Dow Jones Industrial Average, the Standard & Poor's 500 Index, and the Nasdaq Composite Index. Loughran and Ritter (1995) compared the performance of 4,753 companies issuing IPOs or SEOs (seasoned equity offerings) from 1970 to 1990 with a matching sample. On average, the five-year cumulative return for the new companies was 44% lower than that for a sample of "matching companies" (companies with similar market capitalizations, but which had been public companies for the previous five years).

The conclusion to be drawn from all these caveats and qualifications is that the private equity industry's measure of performance—cumulative IRR since inception—may differ dramatically from the returns that can be realized by investors in public or private equity markets. The difference will largely depend on how NAVs of residual holdings are estimated and how liquid the holdings of public shares are. Unfortunately, data to confirm this intuition are hard to come by.

Private Equity Provides Only Minimal Diversification Benefits

Private equity IRRs may suggest that the performance of this asset class is weakly correlated with the returns of the public equity markets, indicating a diversification benefit from a mean-variance portfolio theory perspective. Indeed, emphasizing private equity's diversification is a key "marketing" strategy in the private equity industry, and among providers of alternative assets generally. Table 6 presents the correlation coefficients between the IRRs of various private equity subcategories and the total returns of public equity benchmarks from 1985 through 2001. Except for the Russell 2000 Value Index, the table shows that stock market benchmark returns have a low, but uniformly positive, correlation with returns of private equity portfolios.

We believe that these low-but-positive correlations overstate private equity's value as a diversifier, for two reasons: first, the low liquidity of private equity investments; and, second, and more important, the fact that these NAVs can, for the most part, be realized only in the public equity markets. Figure 4, on page 10, shows the number of IPO deals and the annual returns of the Nasdaq Composite Index from 1985 through June 2002. The annual number of IPOs generally follows the stock market's movements with a delay that reflects the time necessary to plan and execute the IPO. When the stock market is strong, the number of IPOs rises. When the stock market is weak, the number of deals declines, preventing investors from realizing returns on their private equity investments.

Table 6 Correlations Between U.S. Private Equity and Public Equity Benchmarks, Based on Annual Returns from 1985 through 2001

Benchmark	Early- or Seed-Stage Venture Capital	Seed-Stage Venture Capital	Early-Stage Venture Capital	Balanced Venture Capital	Later-Stage Venture Capital	All Venture Capital	Small Buyouts	Medium Buyouts	Large Buyouts	Mega Buyouts	All Buyouts	Mezzanine	All Private Equity
Dow Jones Industrial Average	0.32	0.35	0.33	0.35	0.46	0.36	0.50	0.50	0.40	0.38	0.59	0.67	0.63
Nasdaq Composite Index	0.68	0.44	0.68	0.66	0.77	0.69	0.11	0.25	0.13	0.28	0.26	0.50	0.72
Russell 1000 Index	0.28	0.39	0.28	0.31	0.47	0.31	0.40	0.29	0.21	0.46	0.45	0.51	0.51
Russell 2000 Index	0.25	0.35	0.25	0.29	0.42	0.28	0.47	0.40	0.08	0.55	0.50	0.45	0.46
Russell 2000 Growth Index	0.53	0.42	0.53	0.53	0.66	0.55	0.38	0.53	0.19	0.58	0.55	0.53	0.63
Russell 2000 Value Index	–0.12	0.28	–0.12	–0.05	0.07	–0.08	0.53	0.03	–0.24	0.49	0.29	0.20	0.08
Russell 3000 Index	0.33	0.48	0.33	0.37	0.55	0.37	0.45	0.50	0.35	0.67	0.60	0.51	0.54
Russell 3000 Growth Index	0.52	0.45	0.52	0.52	0.65	0.54	0.39	0.62	0.48	0.62	0.62	0.54	0.65
Russell 3000 Value Index	0.07	0.51	0.07	0.17	0.31	0.13	0.55	0.46	0.33	0.60	0.57	0.44	0.37

Sources: Venture Economics/NVCA and The Vanguard Group, Inc.

This relationship means that the opportunity to transform a private equity fund's illiquid NAV—particularly a venture capital fund's illiquid NAV—into tradable securities depends on the performance of the Nasdaq stock market. Although private equity returns can be higher, and their risks more severe, the factors driving the performance of private equity are the same ones that determine the performance of the public stock market. When deciding how much of your portfolio to devote to private equity, it's useful to view this investment as just one small component of your larger equity allocation.

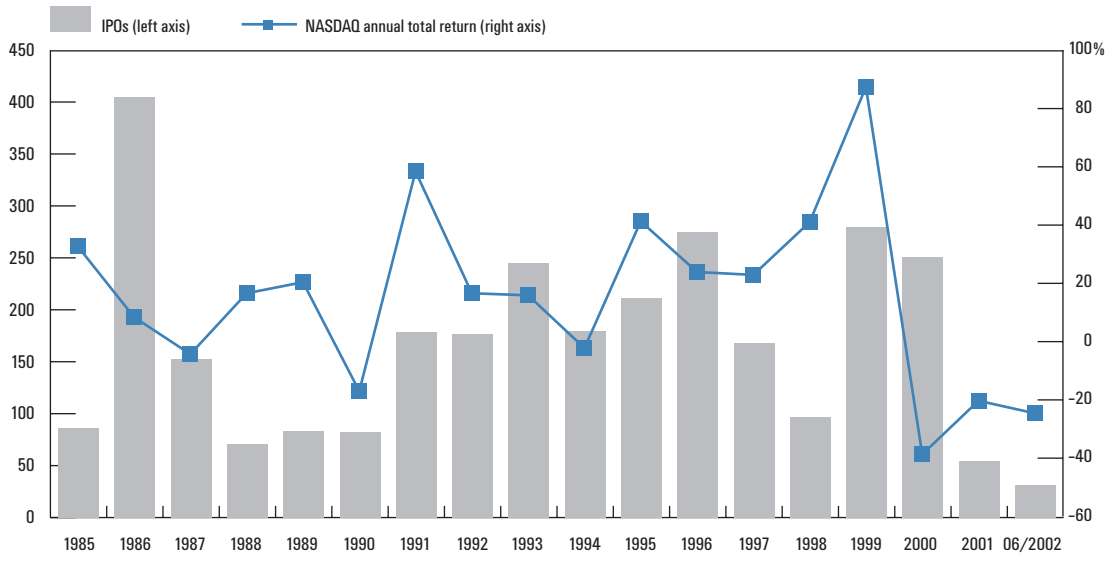
Private Equity's Unique Risks

As their effectively high, yet not totally visible, correlations suggest, private equity investments share many systematic market and economic risks with public equity. These investments also entail a greater level of company-specific risk. Public information about prospective portfolio companies is limited, and the entrepreneurial initiatives of such companies are unproven. In addition, the cost of basic information about private equity holdings is much higher than the same cost for public equity, and the private equity market's scarcity of information and its illiquidity make it difficult to buy or sell these investments in response to a company's changing fortunes.

The major risk factors associated with private equity investments can be summarized as follows:

- **Bankruptcy Risk.** As the total return data presented in Tables 3 and 4 suggest, there is high risk of bankruptcy or default among portfolio companies. In addition, many such companies invest very little in physical equipment or invest heavily in prototypal technologies with marginal resale value. In the event of bankruptcy, the company's financiers will be unable to recover much of their investment from the sale of tangible assets.

Figure 4 Total Numbers of IPOs in the United States: 1985 through June 2002



Source: Venture Economics/NVCA, October 2002.

- **Liquidity Risk.** Investments in private equity are typically illiquid before the portfolio companies offer shares to the public.
- **Reinvestment Risk.** Because of limited investment opportunities, it is usually impossible to reinvest the distributions from a private equity fund in the same fund. Therefore, distributions do not earn the same return as the original investment.
- **Partnership/Manager Risk.** A variety of potential conflicts of interest can occur between a fund's investors and its general partners/managers. For instance, the general partners may assume too much risk in pursuit of high returns because their proportion of capital contribution is small (generally 1%) relative to the proportion of their carried interest (usually 20%).
- **Historical Data Risk.** Because of the entrepreneurial and fledgling status of the portfolio companies, there is little historical information about the business performance of these companies.
- **Tax Management Risk.** Taxes on successful private equity investments typically are due in the investment's late stages. Because private equity is illiquid, it may be impossible to smooth out this tax liability over the life of the investment by, for example, realizing losses to offset future gains. Taxable investors with a portfolio consisting of a broad range of investments may be able to address this inflexibility through careful planning, but the stock market's uncertainty makes such planning difficult.

A Prudent Approach to Private Equity

An obvious way to manage these risks is to serve as a limited partner in a fund managed by a skilled and proven general partner. Professional management of private equity is provided by specialized investment firms that acquire large ownership stakes and take an active role in monitoring and advising portfolio companies. Note that serving as a limited partner in a fund may demand expertise in negotiating partnership contracts. A partnership contract largely decides capital contributions and return distributions. The general partners typically contribute 1% of the fund's capital, with

the limited partners contributing the rest. The contract also dictates return distributions: who gets what proportion of capital returns and when. The goal in negotiating a contract is to align the interest of general partners with that of investors—but striking the right balance can be tricky.

Investors need to ensure that the general partners are properly motivated to maximize investors' returns. While general partners get reimbursed for the cost of managing the funds, the bulk of their compensation should be performance-based. When the spoils are divided, the general partner retains a "carried interest," or a proportion—usually 20%—of the fund's returns. This arrangement is commonplace, but it's important to recognize that the general partner's limited exposure to "bankruptcy" risk, and his or her strong incentive to maximize the return on the firm's capital, can create a conflict of interest. For example, the manager has a strong incentive to take outsized risks in an already-risky asset class, but pays a relatively small penalty for any risks gone bad.

The goal in negotiating a contract is to align the interest of general partners with that of investors—but striking the right balance can be tricky.

To manage the risk of misaligned incentives between general and limited partners, it's sensible to invest in private equity through a fund of funds. This "secondary" market is small, with an estimated $2 billion to $4 billion in net assets in funds-of-funds. By contrast, primary private equity investors committed more than $192 billion in capital to private equity funds in 2000 alone. There are three major benefits of investing through a fund of private equity funds:

1. **Diversifying sector/manager risks.** By spreading private equity assets among different managers and across different sectors, a fund-of-funds can limit the risk of investing with a bad partner or of targeting the wrong sector.

2. **Reducing bankruptcy risk and enhancing performance.** Because funds-of-funds may be able to buy and sell fund shares among themselves, they can theoretically evaluate investments already made by a fund's general partner, thereby reducing the bankruptcy risk. It may also be possible to buy a share in a limited partnership at a deep discount to its net asset value, thereby enhancing the fund-of-funds' total return. In practice, however, there's little evidence that these benefits are realized.

3. **Providing a lower threshold for participation.** Funds-of-funds provide investors access to private equity funds by lowering the minimum capital commitment, sharing the high costs of gathering and analyzing information about the industry's many highly specialized partnerships, and contracting with and monitoring general partners. The benefits of professional management and cost reduction are much more significant than in the funds-of-funds that are familiar to most mutual fund investors—vehicles that buy shares in other mutual funds and then tack on additional management fees.

The disadvantage of a fund-of-funds is, not surprisingly, cost. These vehicles usually charge annual fees of 1% of assets on top of the management fees and carried interest collected by the general partners of the various private equity funds. However, because of the risky and highly specialized nature of investing in private equity, as well as the high costs of gathering and analyzing information about the industry's many highly specialized partnerships, the additional cost of a fund-of-funds is not an oppressive burden.

(continued on next page)

Summary

Private equity's unique and limited performance data have led to some common misunderstandings about the role of this asset class in a portfolio. Successful private equity investments can provide exceptional returns, but those returns can also be difficult to measure, to project, and to realize. Private equity also provides only minimal diversification benefits. The relatively high correlation between stock market benchmarks such as the Nasdaq Composite Index and the *opportunity* to realize returns from private equity suggests that private equity investments produce, at least implicitly, patterns of return similar to those of public equity. Although there are significant differences—private equity is illiquid, and the magnitude of its returns and risks is significantly higher—it's sensible to consider this asset class as one component of a portfolio's overall equity allocation. ■

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