Executive summary Private equity, by definition, refers to any type of equity that is bought and sold in a privately negotiated transaction and is not traded on a public stock exchange. Private equity investors provide capital to companies when it is not possible or desirable to access the public markets, or when there are opportunities to purchase public enterprises that are seen as undervalued or poorly managed. Private equity firms establish funds that raise money and invest it on behalf of their investors in companies that they believe can achieve profitable growth.

In this paper, we summarize the evolution of the private equity market and examine its role in portfolio allocation. In doing so, we identify some of private equity’s unique characteristics, address manager selection issues, and analyze private equity’s distinct risk-return relationship.

We have found that positive private equity performance is highly dependent on manager selection and accessibility. In contrast to public equity, private equity funds can demonstrate persistence in the returns generated by some skillful managers. We also found that private equity returns are very widely dispersed and that there is no investable proxy for private equity investment. These important factors affect private equity analysis in several ways, most notably in that:

- Obtaining the mean or median return for private equity is unlikely, given that there is no investable passive vehicle (i.e., an index).
- Because the dispersion of performance results for funds is very wide, fund selection becomes a critical issue.
- As a result, portfolio mean variance optimization in which private equity is treated as a typical quantitative input is a fundamentally flawed approach.2

In portfolio construction decisions regarding private equity, the analysis needs to be largely qualitative rather than quantitative. Furthermore, our analysis indicates that, on average, private equity does not act as a significant, reliable means of diversifying a portfolio because its returns tend to move in tandem with broad credit and equity cycles.

Finally, we need to highlight the importance of idiosyncratic risk in private equity. In a broadly diversified public equity portfolio, idiosyncratic risk, or unique company risk, can be diversified away. Idiosyncratic risk approaches zero because the factors that affect returns are specific to

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2 The goal of mean variance optimization is to provide the maximum return for a given level of risk or a given return for the minimum level of risk in the portfolio allocation decision. This is based upon an approach to asset allocation developed by Harry Markowitz in the 1950s. We are referring to mean variance optimization in the context of modeling simulated portfolio allocations.
The changing nature of the market

Private equity has become a highly publicized part of the U.S. and global capital markets, as assets have ebbed and flowed in line with general business conditions. Between 1990 and 2008, capital committed to private equity grew at a compound annual growth rate of 20%.3 As they have gained prominence, private equity funds and the size of their transactions have grown larger. The names of the companies they have acquired have also become more familiar—Dunkin’ Donuts, Domino’s Pizza, Toys “R” Us, and J.Crew, to name a few.

As private equity has grown, the main factors underlying private equity returns—growth, financial engineering, or fundamental business improvements—have changed. Originally, the market for arranging financing to start, expand, or acquire companies was informal and relied on the resources of wealthy families. After the Second World War, financing entrepreneurial endeavors became more formalized with the creation of specialized investment management firms such as American Research and Development Corp. and J. H. Whitney & Co.4 These firms, which specialized in early-stage investing in young companies or entrepreneurial ideas, later became known as venture capital firms.5

Years later, in the 1960s, the first leveraged buyout (LBO) transaction aimed to create value through balance sheet restructuring.6 In a leveraged buyout, investors purchase a company with a small down payment in the form of equity and a great amount of debt. This strategy is ideally executed when companies are relatively cheaply priced and credit is widely available. Leveraged buyouts, which became very popular in the 1980s, stand in stark contrast to venture capital deals because they involve purchasing

3 Based on the dollar amount raised annually, as represented in the Thomson Venture Economics database fund commitment report. The Thomson Venture Economics database is based on voluntarily reported data and therefore does not include data on every private equity fund in existence. Thomson Venture Economics is part of Thomson Reuters, and the database is proprietary (www.thomsonone.com).
4 American Research and Development Corp. was a venture capital firm founded in 1946 by Georges Doriot, the “father of venture capitalism” and a former dean of Harvard Business School. J. H. Whitney & Co. is one of the oldest private equity firms in the United States; it was founded by John Hay Whitney.
5 See the Appendix for a description of the types of private equity funds, their fee structure, and how private equity deals work.
6 The first LBO transaction was completed by Kohlberg Kravis Roberts & Co. (KKR); see the Appendix for the characteristics of an LBO firm.
controlling stakes in established companies. Consequently, leveraged buyouts have very different return targets and capital structures than venture capital investments. The peak 1980s LBO transaction was the $25 billion takeover of RJR Nabisco by Kohlberg Kravis Roberts & Co. that was completed in 1989.

Private equity once again entered the spotlight in the mid- to late-1990s as investors searched for opportunities to capitalize on the positive momentum of the public equity markets. Billions of dollars flowed into private equity funds, particularly venture capital funds, as the Internet bubble grew. This cycle collapsed with the sharp decline of the Nasdaq in early 2000 and the ensuing technology slump.

Since then, private equity funds have become more focused on seeking to create long-term value through fundamental business improvements in the companies they invest in, rather than through leverage or financial engineering. A Boston Consulting Group survey (2008) concluded that operational improvements are responsible for twice as much of the value created by private equity funds today as in the 1980s. Most recently, after the global financial crisis in 2008, private equity investment decreased sharply, consistent with the slowdown in the broader economy.

**Portfolio construction considerations**

Private equity can play an important role in driving economic growth. For many institutions and high-net-worth individuals, the hope is that, with the appropriate management and capital provided by a private equity fund, an investment will realize a significant return over a long horizon.

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7 In addition, the Sarbanes-Oxley legislation enacted in 2002 created a new set of regulations for publicly traded companies, leading some investors to see private ownership as an attractive alternative.
While the return potential can be very attractive, there are hurdles private equity investors need to overcome to realize above-average market returns, all of which are important considerations in constructing a portfolio. Private equity funds require a considerable commitment from their investors because of the obligatory calls for capital in the early years, the illiquid nature of the market, and the subjective valuations of portfolio companies. Finding and gaining access to top-performing managers is paramount. Also, private equity has distinct return characteristics, as evidenced by the wide dispersion of returns, persistence of performance, and correlation with public equities.

Illiquidity: Capital calls and the J-Curve effect
In general, successful investors in private equity must have a relatively long investment horizon. The return on the capital that limited partners are committed to contributing in the early years is often not realized until the second half of the 10-to-12-year life cycle of the investment (Ljungqvist and Richardson, 2003). A limited partner is contractually obligated to respond to “capital calls” initiated by the general partnership.8 The penalties for abandoning or refusing a capital call are severe, and include forfeiting interest in the fund. This feature of private equity investments can be particularly relevant and problematic in declining markets and in smaller, concentrated portfolios where investors may face liquidity constraints or otherwise have difficulty meeting capital calls.9 In the event that liquidity is unexpectedly needed within a portfolio, a secondary market has given some investors a chance to sell, albeit at a steep discount that can range up to 50% in distressed markets (McKinsey Global Institute, 2009).

After the first five years, assuming returns materialize, funds typically begin the exit process and make distributions from their earliest investments. This phenomenon is referred to as the J-Curve effect (Figure 1). Private equity funds almost always follow these J-Curve patterns, though the specific details and timing may be different because of factors such as the level of capital calls, willingness of general partners to write off bad investments, overall success of the fund, and health of the economy (Diller et al., 2009). It’s worth noting that limited partners have no control over the rate at which capital is called or when distributions are made—which is not conducive to cash-flow-matching in portfolio management. An investor should have access to alternative sources of liquidity in the event that capital is called at times of distress for the portfolio or the broader economy.

Subjective valuations
Rising allocations to private equity have brought greater scrutiny to the measurement of returns, which is affected by the relative illiquidity of private equity interests, stale pricing, irregularly timed cash flows, voluntarily reported statistics, and the pooled nature of some industry data.

Private equity valuations are subjective because there is no public exchange for the trading of limited partnership interests. In lieu of a continuous pricing mechanism, fund managers set a value for each underlying portfolio company based on an internal appraisal conducted during periodic updates or revisions.10 Such assessments may not be a good reflection of the “open market” value of the interest if it were to be sold and directly affect volatility and correlation calculations (Swensen, 2009).

The internal rate of return (IRR) is the measurement tool used most often with private equity because of the irregularly timed cash flows associated with the J-Curve. The IRR is a discount rate that equates the cost of an investment with the cash flows returned to an investor on a present value basis, taking into account the length of the investment holding period.

8 For more specifics on capital calls, see the section in the Appendix titled “How does a deal work?”
9 The liquidity issue became particularly problematic during the economic crisis of 2008 and 2009. Many limited partners received capital calls when their other investments had declined significantly, forcing them to sell at depressed prices. Some universities, such as Harvard and Stanford, were able to access the debt capital markets to augment liquidity reserves (Karmin and Lattman, 2009), but many other institutions could not do so, leaving them severely cash-constrained.
10 Accounting standard FASB 157 requires that private equity companies perform market valuations rather than carry the company’s value at cost for the life of the investment. The intent is to make portfolio values more reflective of fair market values than outdated purchase prices. These valuations should be justified by outside auditors at least on an annual basis.
Final IRRs are computed net of carried interest and management fees and, therefore, should reflect the limited partners’ actual realized returns. This tool can be criticized because it implicitly assumes that any cash distributions can be reinvested immediately at the measured IRR—which may be an unrealistic assumption given the long-term horizon for most private equity investments.11

Another widely accepted measure of performance is based upon an investment multiple, or cash-on-cash return.12 Cash proceeds received from a fund (net of fees and expenses) at the end of a fund’s life are divided by the capital contributed to the fund. Cash-on-cash measurement does not take into account the time value of money, and hence is also a flawed, if nevertheless an often-used, measure of performance.

If a fund has a high cash-on-cash multiple but a low IRR, this implies that the general partners distributed cash over a greater-than-anticipated period of time.

Private equity return estimates widely quoted in the media and used by some academics typically reflect “pooled” or average returns. A pooled return aggregates the cash flows for a group of funds and then calculates the rate of return on that “portfolio” of cash flows, thus treating the cash flows as if they were from one fund. Theoretically, the pooled return may be alluring; however, in practice there is no investable pooled index that represents the average return. As we point out in Figure 2, unlike in the public markets, there is no accessible index for private equity.

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11 It is often a source of confusion as to why private equity fund managers use IRR to demonstrate their fund management abilities and public mutual fund managers use a time-weighted return. Public and private investment managers use different return metrics because of the difference in their ability to control cash inflows and outflows. Public fund managers cannot control the timing of cash flows resulting from purchases and redemptions, whereas private fund managers are evaluated on their ability to do so. Time-weighted returns look at the beginning and ending values of a portfolio and are indifferent to contributions and withdrawals. The IRR is the annualized implied discount rate, which equates the present value of all of the appropriate cash inflows associated with an investment with the sum of the present value of all the appropriate cash outflows accruing from it (CFA Institute, 2003).

12 Cash-on-cash is also known as DPI (distribution to paid in) and may be expressed as a percentage or multiple.
Manager selection

Manager selection appears to be the most critical element in private equity investing success, but it is also a highly qualitative process. When selecting a manager, investors need to clearly understand the investment strategy and process of the fund, identify a fund’s competitive advantage, assess a fund’s organizational structure and practices, and evaluate the manager’s performance record (TD Capital, 2004).

Highlighting the issue of manager selection is the sheer number of funds to choose from. As displayed in Figure 3, the number of funds listed in the Thomson Venture Economics database has grown at a compound annual growth rate of 13% from 1981 to 2008, to almost 2,000 funds. Although there are far more public equity mutual funds to choose from, more information is widely available on the public funds.

The importance of selecting a high-performing manager is magnified by the low probability of outperforming the public stock market (Figure 4, on page 8). We examined the total return of the S&P 500 Index from June 1988 to June 2009 and found that if a private equity fund produced a return at the median for this category of funds, it had only a 30% chance of outperforming the equity market.  

Magnitude of dispersion

The disparity in private equity returns is dramatic, accentuating the large difference in skill among managers and the importance of manager selection.

13 In this analysis, we used a cross-section of private equity returns and subtracted the S&P 500 total return. Then we estimated the probability of positive excess returns, based on whether or not there was outperformance. Magnitude was not taken into effect. We found that if an investor has access to a manager that ranked consistently in the top quartile of private equity managers, that investor could experience a 70% probability of beating the public equity market; if an investor picks a manager at the median for private equity managers, the probability of private equity outperforming the public equity market is only 30%.
We examined the dispersion in returns between the top and bottom quartiles of all private equity funds (on a pooled basis) from June 1988 to June 2009 and annualized the quarterly data (Figure 5). The wide dispersion of returns reinforces the importance of gaining access to top-quartile performers.

Jones and Rhodes-Kropf (2003) point out that general partners are forced to hold considerable idiosyncratic risk and that, as a result, it should be an important determinant of performance. Any concentration of idiosyncratic risk could influence large swings in returns, either on the downside or upside. A private equity manager may attempt to reduce idiosyncratic risk by investing in companies with different types of capital requirements, diversifying among industry sectors, or not concentrating investments in any one company.

Persistence of performance
At the same time, there is some persistence of returns within private equity partnerships, again implying that manager selection plays a critical role in the success of the investment. It may be that the reputation of individual managers helps them attract the best entrepreneurs and opportunities. Persistence of performance is confirmed in academia and by consulting firms. For example, Kaplan and Schoar (2005), of the University of Chicago and MIT, respectively, show that past performance has been indicative of future performance. In other words, research showed that there was a high likelihood that the next fund of a given partnership stayed in the same performance bracket as the previous fund.

In addition, the experience that comes with participating in a private equity investment may play a part in future success (Phalippou and Gottschalg, 2007).

14 There is a wide range in performance between the first and fourth quartiles, which has been substantiated in academia when using a different reference sample data set (Toledano, 2006).
15 This has also been substantiated by Phalippou and Gottschalg (2007).
2007). Some academics have also noted that there is a positive relationship between a fund’s sequence number and the IRR (Schoar, 2008). A fund that performs well is more likely than a poorly performing fund to have success in fund-raising for subsequent funds. (Figure 6).

Kaplan and Schoar (2005) conclude that, generally, top-performing funds grow less than low-performing funds. They cite evidence that fund returns decline when partnerships grow their next fund “abnormally fast.” Schoar (2008) demonstrates this via a negative relationship between change in IRR and change in fund size for a given firm. This may indicate that private equity funds are not scalable; that is, fund managers are not able to raise bigger and bigger funds while maintaining the same positive results. At the same time, a larger fund size provides larger management fees to the general partnership.

Access and size
Gaining access to high-performing private equity funds can be challenging. Most of the funds with favorable track records and a lengthy operating history have high minimum investment requirements or are closed to new investors (Piper Jaffray Private Capital, 2003). Often, these well-established firms prefer to have limited partners that they know from previous fund-raisings. On the other hand, low performance is found to be concentrated in small and inexperienced funds (Phalippou and Zollo, 2005).

Minimum investment size is usually related to the aggregate size of the fund—in general, the larger the fund, the larger the minimum. A minimum commitment could be at least $1 million, although some smaller partnerships have lower minimums and some larger partnerships have minimums of $10 million to $20 million, or even higher (Prowse, 1998).

Investing in a fund of funds is one way for investors to build a diversified private equity portfolio. Funds of funds proliferated in the 1990s as individuals and smaller institutions began to demand access to private equity but were too small to gain direct access to the better funds. Funds of funds vary considerably in their access to top-tier managers, fund size, longevity, approach to diversification, and fee structure. Fund-of-funds managers charge another layer of fees, usually around 1% of committed capital, to manage the portfolio construction, monitor the investment, and gain access to top-performing funds (Zhu et al., 2004). These incremental fees reduce both short- and long-term returns.

The influence of credit and stock market cycles on performance
Private equity experiences cycles that are strongly influenced by credit markets and company valuations. In general, leveraged buyout cycles are typically tied

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16 Sequence number refers to the order of succession of private equity funds for a general partner. Kaplan and Schoar (2005) have found this to be true, but Phalippou and Gottschalg (2007) did not find evidence of a concave relationship between performance and fund sequence when using an updated and extended version of the data set used by Kaplan and Schoar.
To deepen our examination of correlations, we examined five-year rolling correlations for venture capital firms in relation to the Nasdaq and for leveraged buyouts in relation to the S&P 500 from June 1987 to June 2009. We see a wide dispersion of correlations over time for venture capital, ranging from 0.3 to 0.9. We see a similar pattern of wide dispersion of correlations over time for leveraged buyouts.

Another comparison with public equity markets involves regulatory oversight. In the past, private equity firms typically claimed an exemption from registration as an investment company, avoiding the oversight of the Security and Exchange Commission (SEC). However, as problems with subprime mortgages spilled over to other markets in 2007, institutions were being exposed to greater-than-expected risk. As a result of the ensuing financial crisis, there is legislation under review that would improve transparency. If passed, it would require managers of private pools of capital to register with the SEC under the Investment Advisers Act. For the first time, these advisors would be subject to requirements such as recordkeeping; disclosure to investors, creditors, and counterparties; and regulatory reporting.

Public equity market trends also influence the rate at which private equity funds can realize returns. The valuations of firms at entry and exit play an important role in performance. Healthy equity markets are very important for private equity returns as they drive realizations, either on a comparable basis for merger-and-acquisition activity or as the vehicle for initial public offerings (IPOs). The number of private equity-backed IPOs follows a trend line similar to that of private equity returns (Figure 7).

We tested the relationship between the public equity and private equity markets by using pooled private equity fund data. In the aggregate, venture capital, mezzanine, and buyout firms had a correlation of 0.7 with both the Nasdaq and S&P 500 from June 1987 to June 2009. In this regard, private equity should be considered a component of a portfolio’s overall equity allocation and not as a reliable way to achieve diversification from public equity markets over time.

(See the text box on page 11.)

Notes: Pooled returns take into consideration the scale and timing of large and small cash flows.
Sources: Thomson and Vanguard.
Conclusion

The decision to include a private equity investment in a portfolio depends on many factors and considerations. Investors should have a clear understanding of the dynamics of the industry and the unique attributes of private equity when investing in this segment of equities. Private equity can be considered a component of a portfolio’s overall equity allocation since it does not behave as a consistent diversifier and, ultimately, relies on the public market to realize returns. Unlike public equities, however, an important consideration in a private equity allocation decision is the timing of cash flows and the impact on overall portfolio results. Purchases, or capital calls, are unpredictable and need to be effectively managed in the context of the aggregate portfolio. Finally, an allocation to private equity should be based on an investor’s ability to identify and gain access to select managers, the investment horizon, and the portfolio’s liquidity needs.

Is private equity a distinct or sub-asset class?

Private equity has strong ties to the public equity markets but also has very distinctive characteristics, raising the question of whether it is a separate asset class.

To answer this common question, it is helpful to start with a definition of an asset class. Although there is no universal agreement on the definition, generally speaking, an asset class is thought of as a group of securities with similar risk and reward characteristics. This means that an asset class will often have (1) a low or potentially negative correlation to other asset classes; (2) uniform liquidity characteristics; (3) uniform rules and requirements for potential investors (i.e., “accessibility”); and (4) similar forms and priorities of claims on capital (for example, the claim on corporate assets is very different for a stock than for a bond).

Private equity investments, by definition, have properties that are noticeably different from those of public equity investments, such as relative illiquidity, limited accessibility, and capital calls. However, over longer periods of time, average private equity returns have had a relatively high correlation with public equity performance. This is primarily due to private equity’s reliance on public equity market performance to realize “exit” opportunities either through IPOs or merger-and-acquisition transactions. Furthermore, private equity returns tend to move in tandem with broad credit and stock market cycles.

Given that private equity differs from public equity in three of the four characteristics mentioned above, it could be argued that private equity should be considered a separate asset class. However, we caution that because long-term private equity performance is highly correlated with public equity performance, the potential diversification benefits for investors are limited.

Ultimately, it does not matter whether private equity is considered an asset class or not; what matters more is its impact on a portfolio’s expected performance, with respect to both risk and return. Investors considering a private equity investment need to assess its potential to provide diversification and enhance returns in the context of their own portfolios.
References


Appendix: Fund and industry mechanics

How does a deal work?
Private equity funds are typically structured as a limited partnership. The private equity firm acts as the general partner that oversees the fund. Institutional and high-net-worth investors providing the majority of capital are limited partners that have specific monetary obligations and limited voting rights. At the time of a fund’s inception, limited partners commit to providing a fixed dollar amount or a percentage of the total fund size, and are locked in to their commitment. The actual transferring of the investment is called a capital call and takes place at intervals during the life of the fund based on the general partner’s rate of investment in selected companies. Capital calls are typically required during the first five years of a private equity commitment.

General partners evaluate companies as investment opportunities based on investment potential, fit with the fund’s investment style, and industry of operation. The realization of the investment is known as “the exit” and generally occurs after about eight to ten years as the result of a sale, public floating of stock, or merger with another firm.

The objective of a private equity fund is to increase the value of the underlying asset so it can be sold for a capital gain. The size of the gain is directly related to the potential value created, namely increased cash flow and earnings. This can be accomplished over the long term through adjusting the underlying company’s business strategy, investing in new capital, or injecting managerial talent. The fund’s involvement with the private company does not end until the exit event.

Focused investing through different types of funds
A private equity fund will typically focus its investing in a particular segment along the spectrum of company development, ranging from start-up to mature companies.

Venture capital funds usually take a minority stake in early-stage private companies in high-growth industries such as technology or biotech.

Middle market funds provide growth capital for companies with $25 million to $500 million in revenues and an asset base that can support additional debt (Prowse, 1998). Often, their intent is to pursue strategic opportunities for their portfolio companies, which include expanding operations, entering new markets, or making an acquisition.

Mezzanine debt firms provide a middle level of financing in leveraged buyouts—below senior debt and above equity capital. A typical mezzanine investment includes a loan to the borrower as well as the borrower’s issuance of some type of equity investment. This mezzanine structure offers the capital preservation and current pay features of a loan as well as the upside potential typically associated with equity investments. Generally, mezzanine financing is less expensive and less risky than pure equity financing but more expensive and more risky than senior debt.

Leveraged buyout firms purchase controlling stakes in relatively established (sometimes public) companies that have steady cash flows. Generally, the approach is to provide a small down payment on the purchase of the business and then to borrow the rest of the purchase price. The acquired company covers the costs of the loan. Its assets are used as collateral while the cash flow covers the debt payments. During economic boom times, the leveraged buyout market becomes more segmented based on deal size. So-called mega LBOs are transactions greater than $3 billion (McKinsey Global Institute, 2009).

Generally, early-stage venture capital returns are higher than later-stage capital returns. Investors expect to be compensated for the greater risks associated with a pre-revenue investment, and the number of start-ups that fail is high. On the other
hand, buyout returns are generally lower than those of venture capital because the firms are larger and more mature and have consistent cash flows, rather than the potentially large incremental leaps in business of a venture capital investment.

Ownership structure
The private equity business model is based on aligning the interests of shareholders and management. Most private equity firms form a private partnership to raise capital. The firm acts as the general partner, contributing at least 1% of the total capital, while the investors, or limited partners, provide the vast majority of the capital. The aggregate proceeds are invested in several individual companies, often over a period of three to five years.

The general partner charges the limited partners a management fee. The management fee finances the day-to-day operations of the firm, including salaries and rent. Fees generally run roughly 2% of committed capital.

When the fund sells an investment, the limited partners receive their initial investment proceeds and, in some cases, a contractually agreed upon hurdle rate of return on the total invested capital, along with any fees paid by the investor. Then, the limited partners divide 80% of any net fund profits among themselves, with the general partner receiving the remaining 20%. The 20% is referred to as the general partner’s “carried interest.” In theory, this “carry” should serve as both an incentive and a mechanism for sharing risk.