

Hedge Funds

Too Much of a Good Thing?

- Hedge funds compared with traditional investment strategies
- An in-depth study of manager- vs. market-driven performance
- The corrosive impact of fees and taxes
- Direct investments vs. funds of funds
- Guidelines for allocating hedge funds in an overall portfolio

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Significant Research Conclusions

Hedge funds are qualitatively different from traditional investments, most significantly in their reliance on the return generated by active manager decisions—known as “alpha” in financial parlance—rather than the influence of the market itself.

We estimate that 80% of the return movements from a typical hedge fund have been driven by alpha, versus only 20% for traditional “long-only” managers, whose performance tends to be far more reliant on broad market trends.

Heavy dependence on manager skill has critical implications for the risk/return trade-offs of hedge funds and their role within a portfolio:

- **Over the 10 years ending in 2005—the period for which we have the most reliable data—we estimate that hedge funds, on average, have delivered after-fee returns on par with stocks, but with less than half the volatility.** Further, correlations to most traditional investments have been low, providing a diversification benefit. Our results correct for a number of the biases that overstate hedge fund returns—by about four percentage points relative to widely used hedge fund indexes.
- **But this appealing combination of benefits masks additional hedge fund risks not captured by traditional measures such as volatility. Most notable in the hedge fund landscape is the far wider dispersion in manager results.** The range of annualized alpha between 1996 and 2005 varied by more than 15 percentage points from top- to bottom-decile managers of market-neutral strategies—the hedge funds deemed least risky. That’s six times the dispersion posted by traditional stock managers. And superior performance has proven difficult to sustain. Accounting for these uncertainties is crucial in assessing the potential impact of a hedge fund investment on long-term wealth.

- **Certain low-volatility hedge fund strategies often look like good substitutes for bonds, but we recommend caution.** While bonds offer protection against equity risk, hedge fund correlations to stocks have spiked upward in market downturns. In fact, fund strategies that employ significant leverage and focus on less liquid securities have been susceptible to large declines.

Many investors have migrated to funds of funds—managed portfolios of hedge funds—to diversify holdings and delegate the risk of manager selection. But the diversification benefit of adding progressively more hedge funds is surprisingly small for most investors. **Further, the typical fund of funds has underperformed direct hedge fund investments by 1½ percentage points a year, reflecting the multiple layers of fees.** Tax inefficiency can further erode fund of funds performance.

In our view, the way to maximize the risk/reward trade-off for a hedge fund investor is through prudent, customized asset allocation, factoring in the investor’s spending needs and appetite for risk, along with the fund’s strategy and tax efficiency (for taxable accounts). With the aid of quantitative wealth-forecasting tools, an investor can stress-test the impact of hedge fund allocations of various sizes on his or her ability to meet long-range goals. ■



Hedge Funds

Too Much of a Good Thing?

1. INTRODUCTION: CHARTING A ROAD MAP FOR HEDGE FUNDS

Since the early 1990s, hedge funds have grown at a staggering rate. Once the exclusive province of the ultra-wealthy investor, today hedge funds are attracting a broader group of private investors; they are increasingly popular in the institutional arena as well. Between 1990 and the end of 2005, the number of hedge funds burgeoned from a few hundred to some 8,200, representing more than \$1.1 trillion in net assets—explosive growth that has been well documented.

Receiving less attention, though much more significant for investors, is the difficulty of finding a road map or a means of assessing how hedge funds earn returns and assume risk—information that is essential when determining how much to allocate to them. This is especially important because hedge funds can be far more puzzling than traditional investments. The strategies employed are varied, the manager track records typically short, and information about their ongoing investments often thin. Further, the growth of hedge fund assets notwithstanding, there's no consensus among investors on the degree to which they should be used—if at all, as noted in two recent surveys.¹ Though university endowments were among the early converts to

hedge funds, nearly 40% of them still have no allocation. A survey of wealthy private investors found that approximately one in five had no exposure, while nearly one-third of the respondents reported allocations of more than 25%. Are some investors too cautious, and others too aggressive?

With little common ground among investors about the utility of hedge funds, we undertook in-depth research on thousands of funds—greatly expanding our 2002 study, *Hedge Fund Myths and Realities*. Our goal was to help investors—both private and institutional—better understand the drivers of success in hedge fund investing and the key variables in determining an allocation. Central to that effort was the enhancement of our wealth-forecasting tool, which is designed to allow each investor to view hedge funds' potential impact on his or her financial picture—no matter what markets and/or managers turn out to be: good, bad, or in between. ■

¹ National Association of College and University Business Officers and Institute for Private Investors; 2005 surveys

2. THE LURE OF HEDGE FUNDS: NIRVANA OR SIREN SONG?

A hedge fund is a lightly regulated investment pool, generally limited to high-net-worth individuals and institutions, in which the manager is given great flexibility to exploit inefficiencies in the global investment markets. To accomplish their investment goals, hedge fund managers utilize a far wider set of tools than traditional portfolio managers. In the classic configuration, hedge fund managers not only “go long” securities they believe are likely to appreciate, but also “short-sell” securities poised, in their judgment, to fall in price.

But these aren’t the only tools available to hedge fund managers. Hedge funds may utilize financial derivatives or employ leverage. Some invest in non-traditional or illiquid assets, such as loans or private equity. Others may invest in distressed assets or employ arbitrage techniques that attempt to capitalize on merger opportunities or perceived misvaluations between two closely related securities. (Also see “More Information About Hedge Funds,” page 26.) This expanded tool kit is designed to capture *more return while at the same time hedging out many*

unwanted investment risks. In fact, for many so-called market-neutral hedge funds, the target is to eliminate the portfolio’s sensitivity to the markets’ ups and downs—say, by short-selling securities as much as they buy long. We’ll see, however, that while hedge funds mitigate some types of risk, they add others.

How Hedge Funds Are Different

Given the wide array of hedge fund strategies, it’s not surprising that the return profile of hedge funds is heavily dependent on a manager’s investment skill—much more so than most traditional investment portfolios. If investment strategies are arrayed according to their dependence on the market, index funds, which aim to replicate a benchmark, are at one end of the spectrum (*Display 1*). In the middle are traditionally managed portfolios, which usually aren’t structured very differently from the market—but rely on managers’ investment selections to earn a premium return. At the far end of the spectrum are hedge funds, whose returns are driven *primarily* by manager strategies rather than by broad market direction.

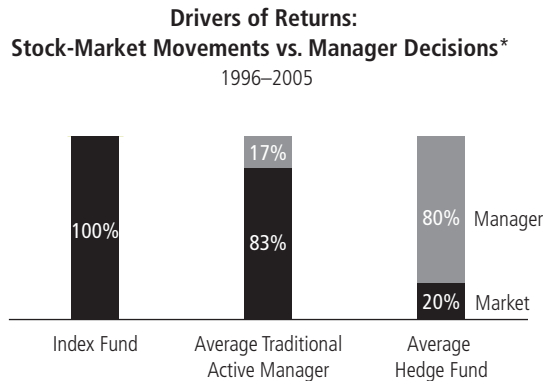
Display 1

Hedge funds are substantively different from traditional portfolios in their approach to investing...

	Index Fund	Traditionally Managed Portfolio	Typical Hedge Fund
Goal	Market return	Premium over market return	Positive return in up and down markets
Strategy	Replicate the market	Benefit from rising markets Manager uses expertise in security selection to generate alpha	Reduce/eliminate risk of declining markets Fully exploit manager’s ability to generate alpha through flexible investing format
Potential Sources of Alpha	N/A	Long-only security selection	Long security selection Short security selection Access to various investment markets Range of financial instruments Leverage Specialized strategies (e.g., arbitrage)
Risks	Market decline	Market decline Poor investment selection	Poor investment selection/use of techniques and tools Underperforming a rising market

Display 2

...as reflected by their far heavier reliance on manager skill



* We measured the variation in monthly returns (using a statistical measure called *r-squared*) that is attributable to the Russell 3000 Index for each fund in our sample universes and took the average result to represent the market return driver. We attributed all returns not explained by the Russell 3000 movements to active manager decisions. See “The TASS Database” and “The Mercer Database” (page 28) for details. Source: Mercer, Russell Investment Group, TASS, and Bernstein

For example, over the 10 years ending in 2005, the market accounted for better than 80% of the ups and downs generated by the average traditional equity manager (*Display 2*).² In contrast, hedge funds were virtually a mirror image: only 20% dependent on the broad market and fully 80% on manager decision making. The technical term for the portion of an investment’s return deriving from the manager’s decisions is *alpha*. When so much of a portfolio’s return is a function of alpha rather than market movements—which investment professionals call *beta*—successful managers have the potential to produce a very attractive return profile. They can avoid the inevitable market downturns and target positive absolute returns regardless of the prevailing environment. Of course, such heavy reliance on manager skill is a double-edged sword: If achieving alpha proves elusive, a fund can do very poorly.

Throughout this study, we consider how the shift from primarily market-based to primarily manager-based returns creates unique opportunities and unique risks that must be understood and factored into asset allocation decisions.

² Traditionally managed bond portfolios rely most heavily on broad movements in the market to generate their returns too. We found that 89% of the variation in the average active bond manager’s return was driven by broad bond market movements, with the remaining 11% driven by manager decisions.

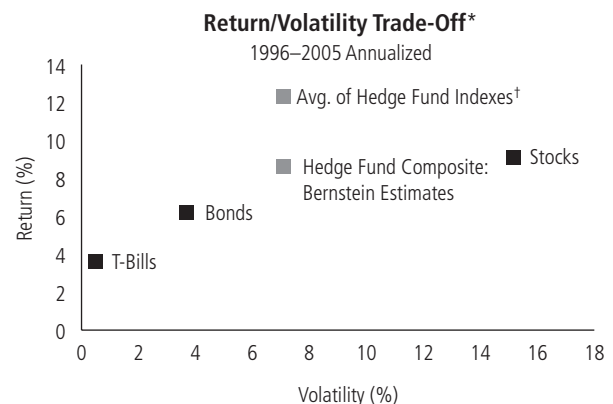
Stock-Like Returns Without the Risk?

To see whether hedge fund investing fulfills its promise, we looked at a number of widely used indexes that attempt to characterize industry performance. As shown in *Display 3*, the average of those indexes from 1996 through 2005—the box at the top center of the chart—shows enviable results: a compound return about four percentage points above the S&P 500’s but with volatility closer to the level of bonds than stocks.

But were these results too good to be true? We took a harder look, trying to adjust for the biases that come with the territory in hedge fund performance reporting. It is at a fund’s discretion to submit results—or not—and for however long a time period it chooses. Given this large degree of reporting discretion, hedge fund index results tend to be significantly overstated. We created our own composite of hedge fund returns by researching the performance of the 6,000+ funds in the TASS database and adjusting the reported returns with the goal of correcting for several biases. (See “A Good Hedge Fund Index Is Hard to Find,” page 6, for details on our approach to analyzing hedge fund returns.) The result was a hedge fund composite whose performance was in line with that of the S&P 500 rather than exceeding it (see the lower “Hedge Fund” box in the display). But earning stock-like returns with much reduced volatility is still a compelling combination.

Display 3

Even after adjusting for the upward biases in reporting, hedge funds showed an attractive profile



* Past performance does not guarantee future results. See page 28 for information on how we used and adjusted the TASS database of hedge funds.

† Seven widely used hedge fund indexes
Source: Lehman Brothers, Standard & Poor’s, TASS, and Bernstein

A CLOSER LOOK: A Good Hedge Fund Index Is Hard to Find

Investors in traditional asset classes have the benefit of a long data series of index returns that profile their risk and return characteristics. For example, the S&P 500 and its predecessors comprise 80 years of stock-return history. Indeed, a recent study presented risk and return statistics for equities as well as government bills and bonds for the last 100 years in 16 countries.* Underpinning results like these are indexes comprising securities selected on the basis of a consistent methodology, with performance monitored over time. Given a reliable proxy for an asset class, investors have some basis for analyzing performance in a host of market environments—periods of strong economic growth, recessions, inflationary spirals, wars, etc.—and can draw reasonable conclusions about the risk and return potential of making large or small allocation commitments.

When it comes to hedge funds, however, the indexes do *not* represent a consistent group of assets selected and monitored over time. They are a collection of fund returns self-reported by the managers; hence, they include only managers who *choose* to report. In fact, managers can stop reporting at their discretion. Gaps such as these create the potential for a number of biases in reported results that must be factored in.

To get a better handle on the performance actually experienced by investors, we started with a vast universe of 6,000 hedge fund managers, derived from one of the largest commercially available databases. When we analyzed the historical results of all funds reporting to the database as of year-end 2005, we calculated an average compound return of 15.1% over the prior 10 years. We then adjusted the results to correct as much as we could for several important biases:

- **Backfill Bias:** With the hope of creating a longer, more comprehensive series of historical returns, some indexes include a fund's prior returns even though they have just begun to report their results to the index provider. Funds tended to “backfill” when their earlier results were superior; *weak* performance was far less likely to be added ex post facto. To correct for this problem, we included only fund returns from the point the manager began reporting to the database. This reduced our return estimate to 13.4%.
- **Survivorship Bias:** Some indexes exclude the historical returns of funds that were once in their database but are no longer reporting. The bias here is the mirror image of backfill bias. Not surprisingly, we found that many such funds had been underperforming their peers when they stopped reporting. We included all of these funds in our analysis—reducing our return estimate to 8.9%.
- **Short History:** Most hedge fund indexes began in the early 1990s, when there were few funds in the universe. When we corrected for backfill, there were even fewer. We therefore began our performance history in 1996, the point at which we felt we had a reliable sample of funds.

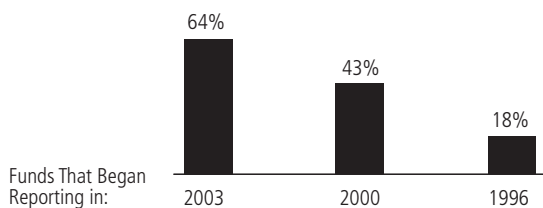
After making these adjustments to the data, we found that very few funds had reported returns for as long as 10 years: Only 18% of the funds that reported in 1996 were still reporting at the end of 2005 (*display, facing page*). Even three-year records proved elusive: Fewer than two-thirds of the funds reporting in 2003 were still in the database by the end of 2005. The reason for the thin history was clear enough: Funds that stopped reporting had underperformed their peers during the prior 12 months by an average of 10%.

* Elroy Dimson, Paul Marsh, and Mike Staunton, *Triumph of the Optimists: 101 Years of Global Investment Returns*. Princeton University Press, 2002.

Many index providers have attempted to adjust for some of these biases, with varying degrees of success. We don't claim that our own database is perfect—but we've tried to create a reliable proxy using a sound methodology.[†] And as we illustrated in Display 3 (page 5), our research indicates that hedge fund returns have been substantially lower than the average of a group of commonly cited indexes—still superior results, mind you, but not as stellar as they would appear at first glance.

Many hedge funds have short track records, either because they haven't been around long or they stopped reporting after hitting a rough patch

Percent of Hedge Funds That Continued to Report Returns in 2005*

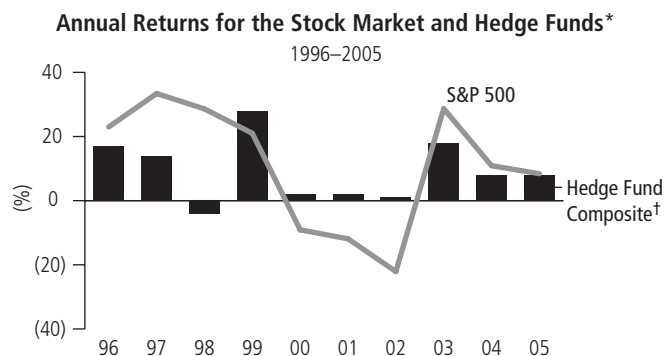


* See page 28 for information about the TASS database of hedge funds, which we used in our analysis.
Source: TASS and Bernstein

[†] We weren't able to account for all the biases that could impact hedge fund performance. For example, there is no way of getting access to a fund's returns in the months after it stops reporting to a database. Another is the potential impact of the time-sensitivity of our analysis: The 10-year period we studied (1996–2005) may in retrospect turn out to have been unusually good for hedge funds, or unusually poor. Further, numerous commentators have discussed the possibility that hedge fund returns are more volatile than they appear owing to the difficulty of accurately marking many of their illiquid holdings to market.

Display 4

Hedge funds participated in rising markets and preserved capital when stocks tumbled...



* Past performance does not guarantee future results.

[†] See page 28 for information about the TASS database of hedge funds and our methodology.

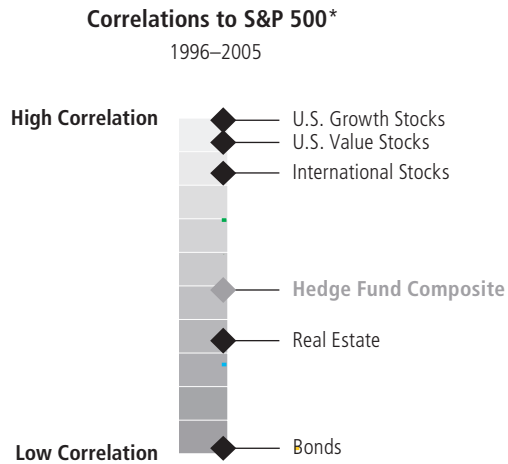
Source: Standard & Poor's, TASS, and Bernstein

In fact, our hedge fund composite (the basis of our findings throughout the rest of this study) looked even better when we examined the decade from 1996 through 2005 year by year (*Display 4*). In a period of extraordinary stock market volatility—which included both superb years and one of the worst bear markets since the Great Depression—hedge funds, on average, did what they were supposed to do. They participated in—or beat—the S&P in the six of the seven up years, and when the market dropped by 38% between 2000 and 2002, they gained a cumulative 5% (posting positive returns each year). In fact, when the S&P tanked, cash flows into hedge funds spiked as investors looked to them for potential insulation from market risk. Further, although hedge fund correlations to the stock market haven't been quite as low as those of bonds (*Display 5, next page*), they were a diversifying investment—since their average exposure to the market was low.

In light of this performance history, hedge funds appear to be a natural fit in the traditional asset allocation framework, designed to combine asset classes with attractive return, volatility, and correlation characteristics. Indeed, it wouldn't be surprising if an allocation model placed *all* of an investor's capital in hedge funds, barring a weighting cap by the investor or his advisor. *But in our view, simply using annualized return and standard deviations to make allocation decisions would be a serious mistake, because hedge fund risks aren't adequately captured by volatility alone.*

Display 5

...while offering a diversification benefit for equity portfolios



*Correlation between the S&P 500 and other investment alternatives, which are represented by the following—U.S. Growth Stocks: Russell 1000 Growth Index; U.S. Value Stocks: Russell 1000 Value Index; International Stocks: Morgan Stanley Capital International (MSCI) All Country World Index Ex-U.S.A.; REITs: National Association of Real Estate Investment Trusts (NAREIT) Index; Hedge Funds: TASS and Bernstein; Bonds: Lehman Brothers U.S. Aggregate Index. Past correlations are not necessarily indicative of future results.

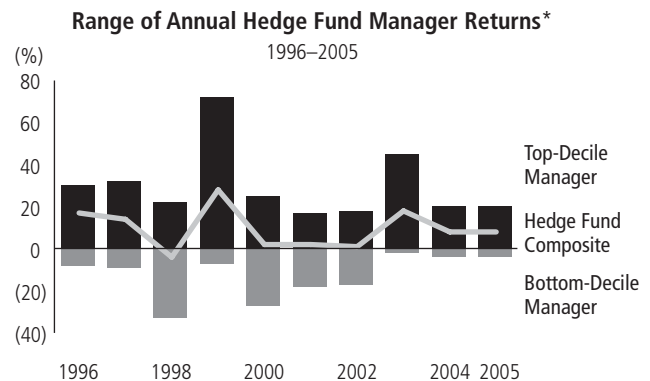
Hedge Fund Risk Is About Manager Mistakes

For one thing, during hedge funds' short history, the industry has experienced massive change: growth in the array of fund strategies, tremendous capital inflows, and a surge in the number of managers. As more assets chase "alpha" in the global markets, the heightened competition may make it harder for managers to add value.

But the need to carefully assess hedge fund risks runs deeper. Hedge funds are not an asset class—like stocks or bonds—whose returns are underpinned by fundamentals like corporate earnings growth or the cash-flow-generating power of companies or governments. Rather, hedge funds are collections of discrete managers, *each relying on his own ability* to exploit inefficiencies in the capital markets by means of a specific tool set and orientation (stock-picking, arbitrage, wagering on macro scenarios, and so forth).

Display 6

Hedge fund index returns tell investors little; the disparity among manager performance has been notable



*Past performance does not guarantee future results. Also see page 28 for information about the TASS database and our methodology. Source: TASS and Bernstein

As a result, performance dispersion—the difference between the results of a particular manager and the index—runs high in hedge funds; much higher, incidentally, than in traditionally managed stock and bond portfolios. In *Display 6, above*, we show annual results from 1996 through 2005 for the same adjusted hedge fund composite we used in *Display 4*—that's the middle line running across the bars. The tops of the boxes are the results achieved by the manager who outperformed 90% of his peers; at the bottom are the returns of the manager who *underperformed* to a corresponding degree. In some years the range between top- and bottom-decile managers was eye-popping: some 80 percentage points in 1999, 55 points in the previous year. But in all years, the dispersion was notable. So while it's *always* important to choose good managers, in the hedge fund landscape it's critical—because knowing the results of a hedge fund index does little to prepare the investor for what to expect from the fund he has chosen.

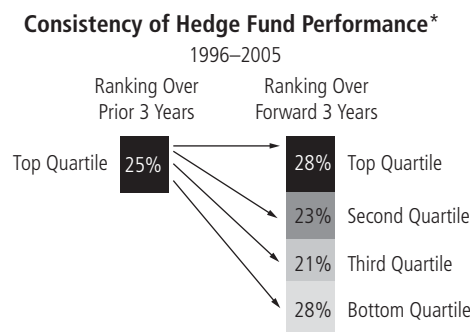
Unfortunately, simple techniques to differentiate between managers, such as relying on a fund's past return levels, are a poor guide to future success. We found that managers' total returns in the past were

weakly correlated with their performance in subsequent periods (*Display 7*). For example, between 1996 and 2005 only 28% of top-quartile hedge fund managers over three-year periods maintained their edge over the next three-year period; in fact, another 28% of these managers fell to the *bottom* of the pack.³ In other words, the odds of top managers maintaining their rankings were in line with a random distribution.

And so hedge funds are neither “Nirvana” for investors nor a Siren song. They’re complex vehicles with correspondingly complex risk/return profiles. Using them to their best advantage requires an astute understanding of their dynamics—and as always, it’s the details that make the difference. ■

Display 7

Going with today’s hot fund is not a winning formula



* We looked at all funds in the TASS database (see page 28) that met our index-inclusion criteria (excluding funds of funds) and that had at least a three-year performance track record at the end of 1998, 1999, 2000, 2001, or 2002. Those whose performance track records would have placed them in the top quartile of hedge fund managers were tracked as to their quartile rankings over the subsequent three years. Source: TASS and Bernstein

³ More sophisticated techniques to differentiate between managers, such as selecting based on past Sharpe and information ratios—statistical measures of return per unit of risk—may offer a better indication of future performance, but our analysis found that, even so, the correlations were generally weak and variable by strategy.

3. LOOKING UNDER THE HOOD: ALPHA, BETA, AND UNCERTAINTY

If details spell the difference for hedge funds, there are plenty of them for investors to consider. But a few stand out as key determinants of return and risk:

Return/Risk Drivers:

- **Manager Skill (*alpha*):** The centerpiece of a hedge fund investment, value-added security selection, or the lack thereof, tends to make or break returns. The more an investor knows about the value a fund has produced above and beyond market movements and the more insight she can gain into the fund's future strategies, the more prepared she'll be to assess the uncertainties going forward.
- **Market Exposure (*beta*):** The name "hedge fund" notwithstanding, the returns of many of them are tied to some extent to market movements—in some cases, a *great* extent. The magnitude of a fund's market tilt has clear implications for a fund's risk/reward profile; knowing its dimensions is critical.
- **Cash Return:** Investors can earn a cash rate of return on the proceeds from selling securities short. These proceeds are held as collateral for short positions and generate interest until the positions are closed.

Costs:

- **Fees:** Levied on both assets under management and profits—typically at high levels—fees loom large for hedge fund investors.
- **Taxes:** Always a consideration for private investors, taxes can be particularly detrimental to hedge fund returns. Most hedge funds trade frequently and are notoriously tax-inefficient.

While we haven't detailed the drivers of return for every hedge fund strategy in this paper, we have divided the universe of hedge funds into two broad categories:

Market-neutral funds attempt to fully hedge out broad market exposure, whether in equity or fixed income. By fully hedging their position, they start out with a cash return—but all or most of their value added is dependent on alpha. (See "How a Market-Neutral Hedge Fund Works," page 27.) And because they're not tied to market movements, their volatility is typically low. In fact, investors tend to think of market-neutral hedge funds as substitutes for a portion of their bond portfolios—a mistake, in our view.

Directional funds maintain some exposure to the market, so their returns combine alpha and beta to varying degrees, depending on the manager's strategy. Directional funds have higher volatility than their market-neutral counterparts and might be used as stock substitutes in an asset allocation.

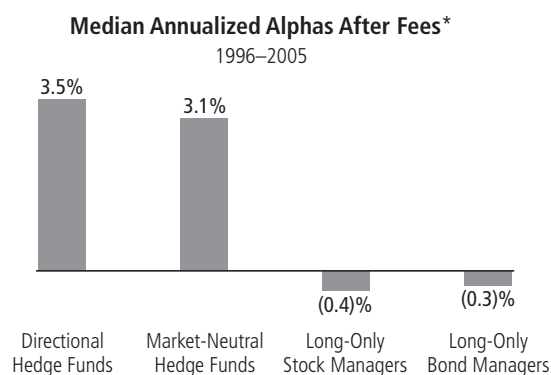
However, one thing the two groups have in common is the primacy of alpha.

Alpha Today, Gone Tomorrow?

If we strip out the portion of returns that were driven by broad market exposures or cash yields, we can estimate the alpha that has been produced by hedge fund managers over the 10-year period we analyzed.⁴ We found that the median hedge fund manager did indeed produce superior results, generating an alpha of about 3% per year net of fees. Remember, this is in addition to the return generated by however much the fund was exposed to the markets. While 3% might not seem like much, it is actually an impressive result over these 10 years compared with the median traditional active manager, whose security selections marginally detracted from performance (*Display 8*).

Display 8

The median hedge fund has been successful in earning significant levels of alpha...

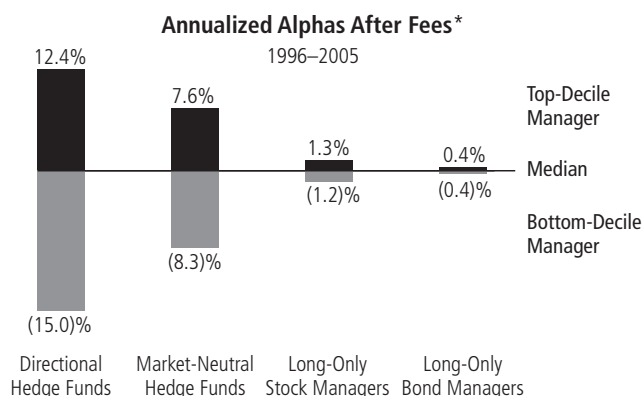


*Alpha is defined as the hedge fund's total return, minus the cash return and minus the fund's estimated sensitivity to Russell 3000 Index returns (in excess of the rate on cash). See page 28 for information on how we used and adjusted the TASS database of hedge funds and the Mercer database of traditionally managed portfolios. Source: Mercer, Russell Investment Group, TASS, and Bernstein

⁴ We used a statistical technique called linear regression analysis to estimate the sensitivity of returns to the market and cash yields. The portion that is unexplained by those variables is considered alpha. Though funds may have had exposures to other market factors, we found their impact generally to be minimal. As proxies for market exposures we used three-month LIBOR (the London Inter-Bank Offered Rate) for the cash return and the Russell 3000 Index for the broad market.

Display 9

...albeit with much greater uncertainty than traditional portfolios



* See footnote to Display 8.

Source: Mercer, Russell Investment Group, TASS, and Bernstein

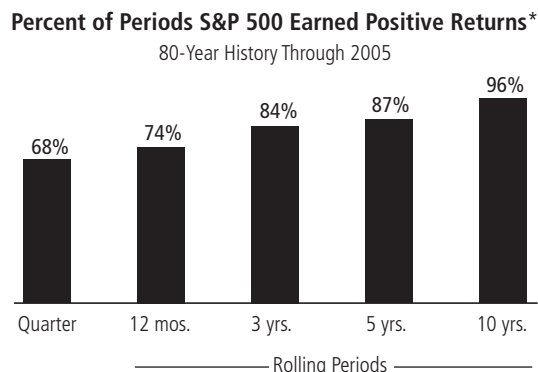
Display 6 (page 8) showed the wide dispersion of hedge fund total returns; as *Display 9* indicates, that dispersion was driven by the variability of alpha. Over the last 10 years, top-decile funds earned as much as 12 percentage points of alpha above the median (for a total alpha that exceeded 15%), while the bottom decile of funds posted dismal results. Traditional portfolios, on the other hand, have had a much tighter range of alphas. But as we've discussed, typically their strategy is to participate fully in the market; they owe most of their return to *beta*: the ups and downs of the market.

So how does a strategy that is far more reliant on alpha than on beta (the market) affect risk and return? For one thing, while losses can be severe over the short term in the stock market, they tend to turn positive over time, lifted by the long-term upward trend in corporate profits (*Display 10*). Although the alpha opportunity is enticing, it *doesn't* necessarily grow over time and isn't as dependable—for several reasons:

- It's difficult to distinguish hedge fund managers with above- versus below-average skill;
- A given hedge fund strategy may temporarily fall out of favor or face increased competition (see "The Boom and Bust in Convertible Arbitrage," page 16); or
- Hedge funds as a whole may go through a rough patch.

Display 10

The market tends to reward the long-term investor



* Past performance does not guarantee future results.

Source: Center for Research in Security Prices; Compustat; Federal Reserve; Roger G. Ibbotson and Rex A. Sinquefeld, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," University of Chicago Press Journal of Business (January 1976); and Bernstein

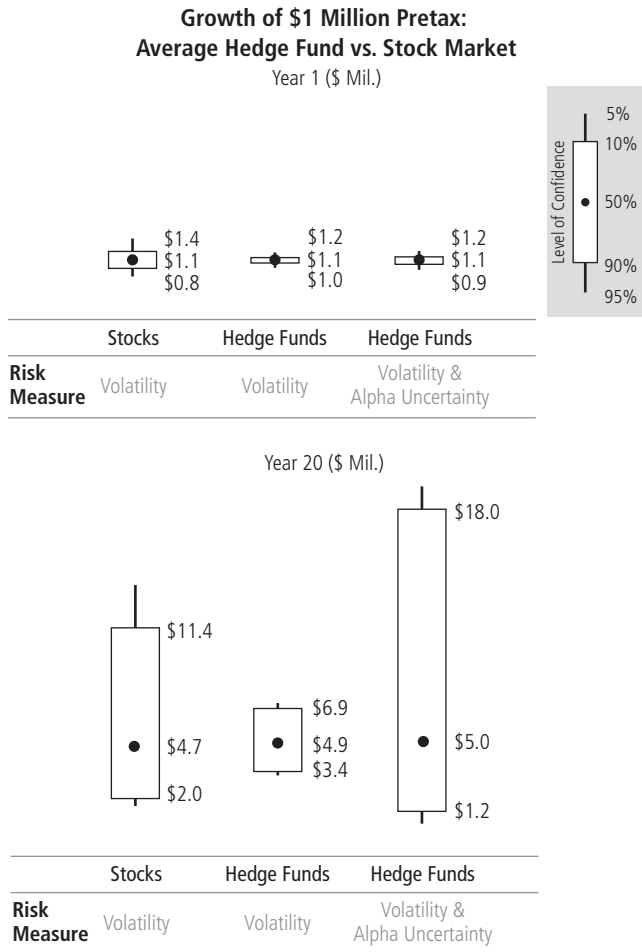
As we see it, to appropriately weigh the trade-offs between hedge funds and traditional investments, modeling the risk/return dynamics of both is key. This is especially important since the dispersion in alpha levels is rarely, if ever, incorporated into investment-planning models.

Quantifying Alpha Uncertainty

In hedge funds, the variability in alpha can make a big difference in wealth accumulation. In *Display 11*, next page, we show a range of outcomes for a \$1 million portfolio invested in the stock market on the one hand, and in the average hedge fund on the other, after one year and after 20 years. To generate the results, we simulated 10,000 market outcomes ranging from spectacular to dismal. In this analysis:

- For each of the two time periods, the figures to the left array our projections of the value of the original \$1 million if invested in the market. We've used the standard return/risk metrics: *average growth rate* and *volatility*, which we assumed were 9% and 18%, respectively, for the S&P 500. Given those assumptions, we show our estimated results on "box-and-whiskers" charts that array the probability of outcomes from the 5th to the 95th percentiles—though we focus on the 10th, 50th, and 90th percentiles as proxies for the upside, median, and downside cases, respectively.

When alpha uncertainty is added to traditional forecasting methods, the impact on hedge fund wealth over time is huge



Based on Bernstein's estimates of the range of returns for the applicable capital markets over the next 20 years. Data do not represent past performance and are not a promise of actual future results or a range of results. See *Notes on Wealth Forecasting System*, pages 29–30, for further details.
Source: Bernstein

- The figures in the center present the same probability analysis for hedge funds, using the average return and volatility we measured over the past 10 years: 9% and 7%, respectively—stock-market-like growth with far less fluctuation.
- But we took our analysis a critical step further. The figures to the right *add* additional hedge fund risk to the analysis: the uncertainty around a fund's ability to add alpha. Volatility simply measures short-term fluctuations around a mean return; uncertainty incorporates the concept that the mean itself might be significantly higher or lower than expected. Therefore, in half the sce-

narios we input into our model we bumped up the mean return to reflect superior alpha; in the other half, we dropped the mean by corresponding amounts.

After just one year, considering volatility as the sole metric for risk, when the market is strong the S&P 500 beats hedge funds; when it's weak, hedge funds outperform. That's just as you'd expect, since we've assumed that stocks grow at the same rate as hedge funds but with much more fluctuation. When we factor in alpha uncertainty (the rightmost bar), hedge fund risk increases—but not by very much. The downside outcome for hedge funds, which had been roughly \$1 million when risk was measured only by volatility, declines by about another \$100,000.

After two decades, though, the picture is entirely different. If alpha uncertainty is ignored, the spread of hedge fund outcomes is much tighter than the market's—implying a safer, more consistent investment. However, when hedge fund alpha risk is added, *both* upside and downside outcomes versus the market are magnified. That's because changing a portfolio's growth rate by several percentage points has a huge impact over time. We estimate an additional \$6½ million over the S&P 500 for investors fortunate enough to have selected top managers all along, but a shortfall of almost \$1 million if the managers were among the poorest. And what was a \$3½ million spread between good and bad hedge fund outcomes when volatility was the gauge widens into a \$17 million chasm.

For more on hedge fund risk/return, see "Alpha, Beta, and Other Ambiguous Concepts," page 14.

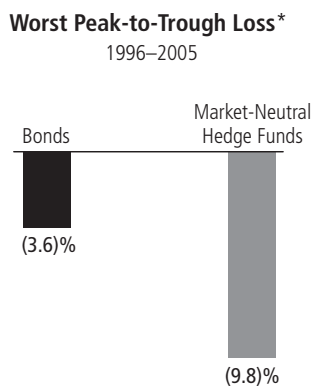
Not Protective Like Bonds

There's another aspect of hedge fund risk that may operate below the investor's radar, since the unstable behavior of hedge fund returns is not adequately captured by traditional measures. To appreciate the implications of that instability, we need to look at peak-to-trough loss and correlations in *down* stock markets. Peak-to-trough declines measure the size of losses, even if short-term, that investors have actually realized—and therefore should anticipate in their planning. Could they withstand the loss

financially if they had to withdraw money at the wrong time? Could they tolerate the ups and downs emotionally? Downside correlation tests the durability of hedge funds as a diversifier during periods when the stock market declines—when protection against equity risk really counts.

Remember, over the 10-year period ending in 2005, market-neutral hedge funds had roughly the same level of volatility as bonds. But they experienced a peak-to-trough loss that was more than 2½ times the size of bonds, as measured by the Lehman Aggregate bond index (Display 12). A number of individual funds did far worse. The higher return and similar volatility of market-neutral strategies versus bonds might have fooled investors into thinking that their loss potential was much less severe.

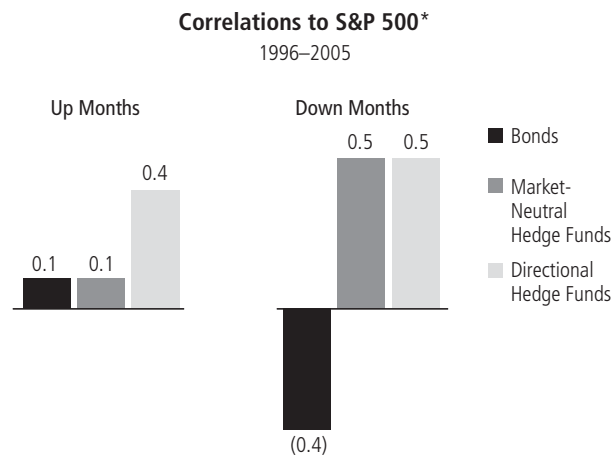
Display 12
Even “low-volatility” hedge funds can lose more than bonds...



* See page 28 for information about the TASS database and our methodology. Bonds are represented by the Lehman Brothers U.S. Aggregate Index. Source: Lehman Brothers, TASS, and Bernstein

And correlations spiked upward for both directional and market-neutral strategies when the S&P 500 was down (Display 13). That means they acted more like stocks when stocks moved lower. Meanwhile, bonds’ negative correlation meant that when the stock market faltered, on average they posted gains. The data pointed to a clear conclusion—that bonds are a far more effective stabilizing force than hedge funds in a diversified portfolio.

Display 13
...and unlike bonds, tend to track poor stock markets



* See page 28 for information about the TASS database and our methodology. Past correlations are not necessarily indicative of future results. Source: Lehman Brothers, Standard & Poor’s, TASS, and Bernstein

The 1998 Downturn and Other Dark Possibilities

While hedge funds can fare well in some broad stock market declines, they have often suffered when the financial system experienced a sudden disruption. Whether geopolitical or more limited in scope, these so-called systemic shocks tend to impact holders of the riskiest assets. A classic example of this occurred in the second half of 1998, when the Russian government defaulted on its bonds; this sent shock waves throughout the global financial system and triggered a rush out of risky assets as investors hastened into areas of the market deemed safest, such as Treasury bonds. Indeed, the S&P 500 lost 14½% in August 1998. Almost as quickly, however, the market recouped its loss.

Such quick recoveries are more likely when the landscape is the broad market. In contrast, hedge funds—especially those that are more concentrated or focused on illiquid or lower-quality investments—may be hard hit. Indeed, these types of hedge funds were hurt badly in the 1998 fray; some were even forced into liquidation, most notably the giant Long-Term Capital Management. Admittedly, this was an unusual event—but big bumps in the road aren’t rare in hedge fund investing. So while some funds may be characterized as “low-risk,” investors should be aware of what that really means.

A CLOSER LOOK: Alpha, Beta, and Other Ambiguous Concepts

It's easy to look at a manager's total return and compare it to an index or another manager in the hope of making a judgment about performance. But a *higher total return doesn't necessarily mean a greater degree of manager skill, and vice versa*—which is key to understanding how hedge funds earn their money.

The *display, right*, posits two scenarios for two long/short equity hedge fund managers. In Scenario 1 the S&P 500 gains 10% over the course of a year, and Hedge Fund A earns 12%, while Fund B posts a market-like 10%. The natural inclination is to regard Manager A as superior—but things may not be what they seem. If Hedge Fund A is 100% exposed to the market with a beta of 1.0, 10 percentage points of the fund's 12% return are attributable to the market's gain. The manager has earned two percentage points of alpha. Fund B, with a beta of 0.2, has *hedged out* most of the market risk. Only two percentage points of his 10% return are driven by the market; the manager has posted a large 8% alpha.

An investor may say, "So what? Fund A has still outperformed B," and that's true enough. But that's because the market itself had a good year. If—as we posit in Scenario 2—the market *dropped* by 10% (and the alphas of both managers were the same as in the up market), Manager B's high alpha would produce a positive return for the fund in a down market, while Fund A would lose 8%. Manager B would deliver more value.

Two equity hedge funds: disaggregation of alpha and beta returns

	Hedge Fund A Exposure to Market = 100%*	Hedge Fund B Exposure to Market = 20%*
Scenario 1: S&P 500 Up 10%		
Beta	1.0	0.2
x Market Return	10%	10%
= Beta Return	10%	2%
+ Alpha Return	2%	8%
Total Return	12%	10%
Scenario 2: S&P 500 Down 10%		
Beta	1.0	0.2
x Market Return	(10)%	(10)%
= Beta Return	(10)%	(2)%
+ Alpha Return	2%	8%
Total Return	(8)%	6%

* For the purposes of this example, we're ignoring the effect of any cash returns the funds may have as a result of short positions.

When's an Alpha Not an Alpha? When It's a Beta

But even the concepts of alpha and beta are ambiguous; they're more slippery than most investors imagine. For example, within the so-called market-neutral category we found that some strategies can have unexpectedly high sensitivity to the market, either directly or indirectly (*display, facing page*). We estimated, for instance, that over the 1996–2005 period, 42%—not far from half—of the return earned by the average event-driven hedge fund derived from a combination of market movements and market-related factors. (Event-driven funds

One of the potential clouds we see on the horizon is the burgeoning use of credit default swaps. These financial derivatives represented 85% of the securities outstanding in the \$9 trillion global credit derivatives market as of 2006, and hedge funds are big players in the market.⁵ Credit default swaps allow counterparties to trade corporate credit risk in lieu of holding the actual bonds themselves. However,

they also link the counterparties to one another. Should one or several counterparties on the losing side of a transaction be unable to pay the winners, a spiral of defaults could occur, causing a financial crisis (or simply fear that one is brewing). Regulators are taking steps to prevent counterparty risks from sparking the next financial crisis—but problems like these loom larger for hedge funds than traditional investments.

⁵ AllianceBernstein estimates

attempt to exploit price inefficiencies stemming from corporate events.)

Consider merger arbitrage, a popular event-driven hedge fund strategy that seeks to make money by correctly forecasting whether or not a merger will successfully close while hedging exposure to day-to-day stock market movements. The strategy is theoretically market-neutral. But:

- It tends to do well or poorly in sync with the broad market, since merger activity booms in bull markets and dries up during downturns;
- It tends to go long smaller-cap stocks (the usual acquisition targets) and short-sell the larger-cap acquirers; and
- It typically has a value orientation because attractive acquisition targets are usually bargain-priced stocks.

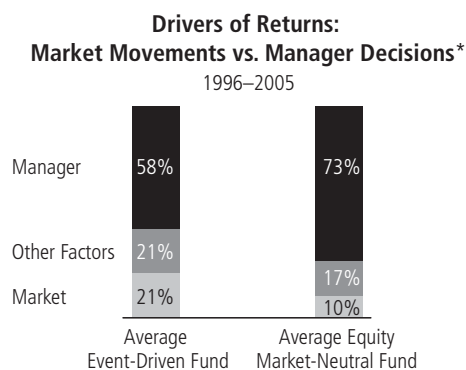
In other words, there's generally some "beta" return and risk flying under the radar.

Equity market-neutral funds also exhibit fairly significant returns because of factors unrelated to manager skill. While in merger arbitrage these factors are a function of the strategy, in equity market-neutral funds they are typically dependent on the investment style of the individual manager. Some may favor value companies versus growth, for example, while others may favor small companies versus large.

Fees and Taxes Can Be Corrosive

Further, hedge fund fees and—for private investors—taxes are key factors in analyzing hedge fund returns. While hedge fund fees come in many varieties, nearly all levy two layers: a percentage of the assets under management (like most traditional investments) and a percentage of the profit earned by the fund. The "classic" structure is 1% of the assets—with many funds charging 2%—and 20% of fund earnings. "Highwater marks" are common,

Beta can crop up in unexpected places



* We calculated the percentage of the average manager's return variation (the *r-squared*) that was driven by various factors. The market is defined as the percentage of return variation explained by the Russell 3000 Index. The other factors include a fund's exposure to small- versus large-capitalization stocks, value versus growth stocks, and stocks with positive versus negative momentum. We attributed all returns not explained by the factors listed above to manager decision making.

Source: Fama/French, Russell Investment Group, TASS, and Bernstein

We emphasize these concrete examples of the ambiguities surrounding the term "manager skill" because in evaluating hedge fund returns it's important to distinguish between good manager decisions and riding a wave—in either the market or a particular fund strategy. Often, however, that distinction is difficult to make; hedge funds don't come with an alpha/beta guidebook.

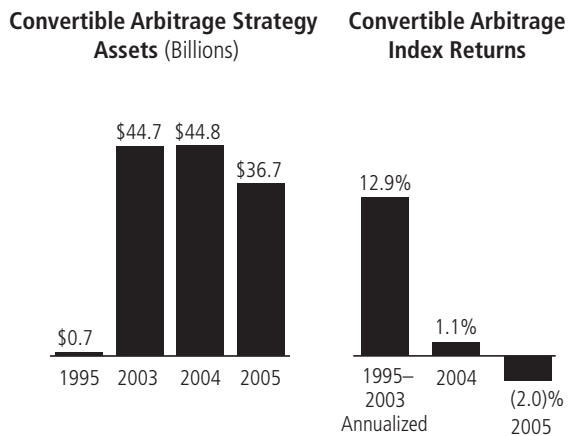
which eliminate all incentive (but not management) fees until investors recoup any losses.

We've been showing all hedge fund returns net of fees. In *Display 14, page 17*, we illustrate the difference in annualized net returns generated by funds that charged higher fees over the past 10 years versus those with lower fee structures. On average, funds that carried higher charges didn't compensate their investors with higher returns.

A CLOSER LOOK: The Boom and Bust in Convertible Arbitrage

We've talked about "riding strategic waves" in managing hedge funds (see "Alpha, Beta, and Other Ambiguous Concepts," page 14), since some hedge fund strategies fall in and out of favor or attract so much capital that finding an edge to exploit becomes a problem. Convertible arbitrage (typically going long in a convertible bond and short-selling the common stock of the same company) is a perfect example. Beginning in 1995, this strategy enjoyed several years of outsized returns during a very favorable market environment. The result was a massive inflow of investor capital into this area and increased manager competition (*see below*).

Chasing what's "hot" is always risky



Source: HFR and Bernstein

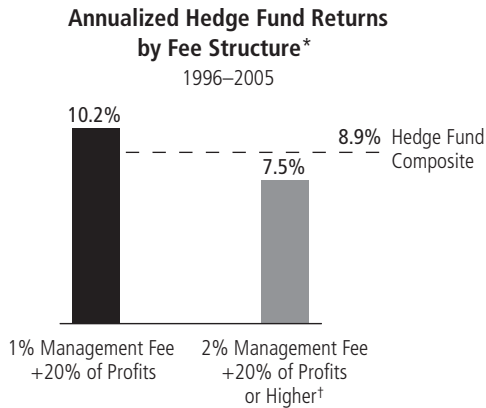
But while assets invested in convertible-arbitrage hedge funds were increasing exponentially, the convertible bond market itself was growing at a far slower pace. At one point, convertible arbitrage hedge funds were said to account for 70% of the daily trading volume of convertible bonds, a potentially dangerous concentration of hedge fund investors in a market that's fairly small. And indeed, by 2004 the large inflows of capital, coupled with deteriorating market conditions, took their toll, resulting in a sharp decline in performance: The 13% compound return generated by convertible hedge funds from 1995 through 2003 dwindled to 1%—and then to a 2% loss in 2005.

In the case of convertible arbitrage, what we witnessed was a hot market followed, almost inevitably, by capacity constraints. It's not that convertible arbitrage is by its nature a weak hedge fund strategy, nor are we taking a position about its prospects in the period ahead. One could argue that the downdraft has further to go—or that it's reached bottom; in fact, assets started to pour out of the strategy, and, as of mid-2006, there were some signs that the convertible-arbitrage market might be reviving. But our point here is historical, not forward-looking. It's especially important for hedge fund investors to track movements like this, since a substantial number of hedge funds operate in narrow markets.

When it comes to taxes, it's not what the portfolio earns that counts, but what the investor *keeps*. Although the issue may not be relevant to institutions, it can be critical for a private investor. But hedge funds tend to be notoriously tax-inefficient for several reasons:

- For many hedge funds, frequent trading is the norm. The average annual turnover rate is 300%, making a significant portion of the average fund's return subject to highly taxed short-term capital gains—as are *all* short-sale profits, regardless of when they're realized.

Higher fees can push down returns substantially



* See page 28 for information about the TASS database and our methodology.
 † Includes funds that charge either a management fee higher than 2% or an incentive fee higher than 20% of profits, or both
 Source: TASS and Bernstein

- Some popular hedge fund strategies, such as merger arbitrage, which attempts to capitalize on short-term price misvaluations between the stocks of an acquired and acquiring company, are by their nature tax-inefficient.

- Other strategies—particularly long/short directional funds—can be managed with an eye to taxes by using techniques such as avoiding short-term gains, deferring long-term gains, and harvesting losses. Incorporating this type of tax awareness, our research finds, has the potential to reduce the annual tax bite of the average long/short fund from 35% of its return to about 15% without meaningfully lowering pretax results. But most hedge fund managers pay little attention to taxes.

Because the tax and fee burdens of hedge funds are notable, investors must factor in these drags on performance. Just how does an investor navigate the crosscurrents of hedge fund opportunity and risk? In the following chapters we examine two key strategies: diversification and customized allocation. ■

For additional information, see “Hedge Fund Fees and Taxes: A Hypothetical Example,” page 28.

4. FUNDS OF FUNDS: HURDLES OF HURDLES?

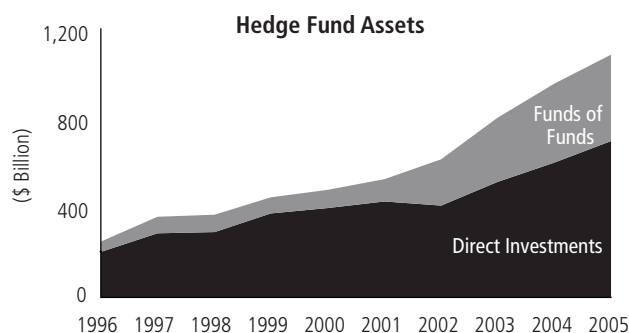
An investor who wants to diversify his hedge fund investments can go out on his own and select a group of funds he believes to be first-rate, or he can opt for the ready-made format, called a “fund of funds.” With a fund of funds, a manager pools investor capital, collecting enough to give each investor access to multiple funds—often 20 or more. The selection of funds, which usually encompasses an array of strategies, is made by the fund of funds manager.

Funds of funds have become increasingly popular. Ten years ago, when measured by assets under management, funds of funds were dwarfed by direct hedge fund investments, but by the end of 2005 it’s estimated that funds of funds had captured more than one-third of the dollars invested in hedge funds (*Display 15*).⁶ Their appeal is twofold: the potential for risk reduction through diversification and higher returns through superior manager selection. But does the strategy deliver on its promises?

A historical analysis indicates that the benefits of significant fund diversification are quickly marginalized when an investor’s hedge funds are one component of an otherwise diversified portfolio. As for fund selection, most of the time it hasn’t been robust enough for funds of funds to cover their costs.

Display 15

Funds of funds have taken an increasing share of the hedge fund market over the past decade



Source: HFR

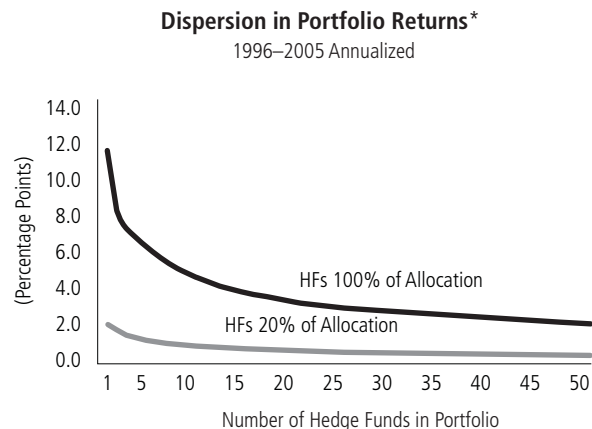
⁶ Another strategy that is gaining some traction today is the use of vehicles called “investable hedge fund indexes,” established by several providers of hedge fund index returns. As in a fund of funds, investors still pay the fees to each of the managers in the index and another charge to the index manager (see page 19). Their performance to date has been poor; a 2006 study by Greenwich-Van Advisors reported that over the prior three years four major investable indexes underperformed the broad hedge fund indexes they were seeking to track, three of them by substantial amounts.

Too Many Funds?

Now, diversification is not a bad thing; indeed, it’s a tried-and-true tenet of investing. But few investors restrict their portfolios to hedge funds; their fund investments are one component of an already diversified mix. It’s one thing to spread your money among 20 managers if your portfolio consists solely of hedge funds. But *if only 20% of your total portfolio is in hedge funds*—a more reasonable allocation for many investors—the advantage of owning 20 funds is much diminished. *Display 16* illustrates the difference.

Display 16

Diversifying hedge funds can be effective in reducing the uncertainty of returns—but only up to a point...



*Using historical asset-class and individual hedge fund returns, we created 1,000 portfolios of one-manager hedge funds, 1,000 portfolios of two-manager hedge funds, and so forth, up to 50-manager funds, by randomly selecting hedge funds. We then calculated the difference between a top-performing portfolio (one that outperformed 75% of the others) and a bottom-performing portfolio (one that outperformed only 25% of the others).

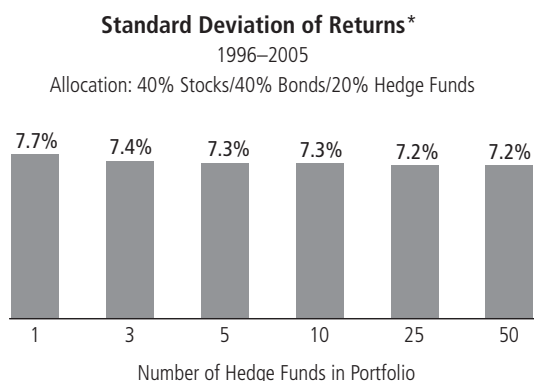
Source: Lehman Brothers, Standard & Poor’s, TASS, and Bernstein

To evaluate the benefits of diversification, we simulated portfolios of one-manager hedge funds, two-manager hedge funds, three-manager hedge funds, and so forth (up to 50 managers), using the historical returns of the hedge funds in the TASS database. We then sorted each of our sets of portfolios from best to worst and calculated the difference in return—the return dispersion—between the top- and bottom-quartile performers. What we wanted to see was how much the return differential would have been *reduced* by investing successively in more and more funds. The steeper the slope of the line, the more beneficial diversifying with additional funds would be.

We considered two allocations: one wholly in hedge funds, the other a mix 20% in hedge funds, 40% in stocks, and 40% in bonds. For both the all-hedge-fund and balanced portfolios, adding more funds reduces the dispersion in portfolio returns—but the two lines in Display 16 are markedly different. When hedge funds are viewed as a stand-alone investment, nearly 20 managers are needed before the curve begins to flatten (at which point additional managers have only a marginal impact). Even just by moving from one to two managers, return dispersion was reduced by more than three percentage points. But when hedge funds represent a relatively small portion of an overall portfolio they don't add much risk to begin with, and the dispersion curve flattens quickly. Going with a few funds rather than just one could be a good strategy for reducing the uncertainty of returns—but adding *more* than a few would likely provide only marginal benefit.

If the benefit of diversification quickly diminishes vis-à-vis the dispersion of returns, the same holds true for hedge fund volatility, the short-term fluctuations in gains and losses. By this measure, usually calibrated by the standard deviation of returns, adding more funds brings some advantage to a balanced portfolio. But it's small and virtually disappears after the investor commits to three funds (*Display 17*).

Display 17
...and adding lots of funds also does little to cut volatility

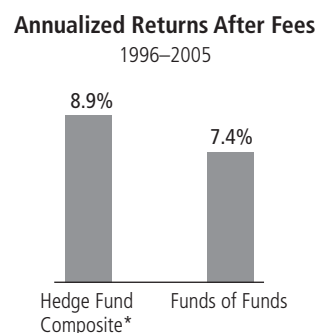


* Using historical asset-class and individual hedge fund returns, we created 1,000 portfolios of one-manager hedge funds, 1,000 portfolios of two-manager hedge funds, and so forth, up to 50-manager funds, by randomly selecting hedge funds. We then calculated the average volatility of the portfolios created.
 Source: TASS and Bernstein

Fee Problem Magnified

On the other hand, if funds of funds can deliver on their other promise—above-average performance driven by superior manager selection—then any additional diversification benefit is icing on the cake. However, our research found that while there are certainly some excellent fund of funds managers in the marketplace, on average they've failed to deliver additional return. In fact, over the last 10 years the compound pretax return of a fund of funds composite (*Display 18*) would have been 1.5 percentage points lower than our hedge fund composite.

Display 18
Paying for diversification can be costly



* Not including funds of funds
 Source: TASS and Bernstein

The reason why funds of funds have not fared well overall has to do with their multiple fee structure. They usually add *two more* cost tiers: management and, in many cases, performance-based fees to the fund of funds manager on top of those paid to the underlying funds. (However, the incentive fee to the manager is more typically 10%, not 20%, of the profits.) These extra layers of fees raise the bar for a fund of funds. Further, funds of funds are unlikely to mitigate the tax burden, especially since the investor has ceded the power to select tax-efficient managers.

Combining both cost and (for taxable investors) the effect of taxes, *Display 19, next page*, shows how much a portfolio manager would need to earn *gross* in order to generate comparable levels of return after fees and taxes. The hurdle is highest for funds of funds; their managers need to pick not just better-than-average funds to produce incremental return, but among the very best.

Funds of funds need to work hardest to earn their keep

Net vs. Gross Returns*			
Target Return After Fees & Taxes	4%	6%	8%
Gross Return Needed			
Tax-Efficient Hedge Fund†	6.9%	9.8%	12.8%
Tax-Inefficient Hedge Fund	8.6	12.5	16.4
Fund of Funds	10.9	15.0	19.3

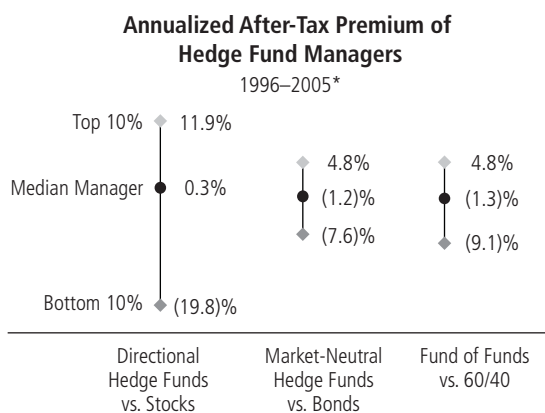
*Direct investments in hedge funds are assumed to carry a 1% management fee and 20% incentive fee. Funds of funds are assumed to carry an additional 1% management fee and 10% incentive fee. For a “tax-efficient” fund, 15% of pretax return is assumed lost to taxes, and 35% for a “tax-inefficient” fund.

†The tax cost assumed here for the “tax-efficient” fund does not include a future tax liability that may result from the deferral of unrealized gains, which reduces the tax cost for the current year.

Source: Bernstein

Display 20 provides another perspective on the situation. If we apply estimates of the tax burden that would be due on the after-fee performance of hedge funds, we find, not surprisingly, that most hedge funds have had a tough time generating substantial premiums over traditional investments. Our research suggests that the risk/reward profile is least attractive for funds of funds; with their two layers of fees, their upside is limited and their results are heavily skewed to the downside.

Many hedge funds haven’t met their benchmark bogeys after fees and taxes



* See “TASS Database,” page 28, for a description of our tax assumptions. The actual tax liability stemming from any individual hedge fund may be meaningfully different from these estimates. Stock benchmark returns (using the S&P 500) were taxed at 0.6% per year. Bond benchmark returns were generated using the Lehman Brothers Municipal Bond Index and were assumed to incur no taxes. The benchmark used versus funds of funds was a 60/40 stock/bond mix.

Source: Lehman Brothers, Standard & Poor’s, TASS, and Bernstein

So Is Diversification a Mistake?

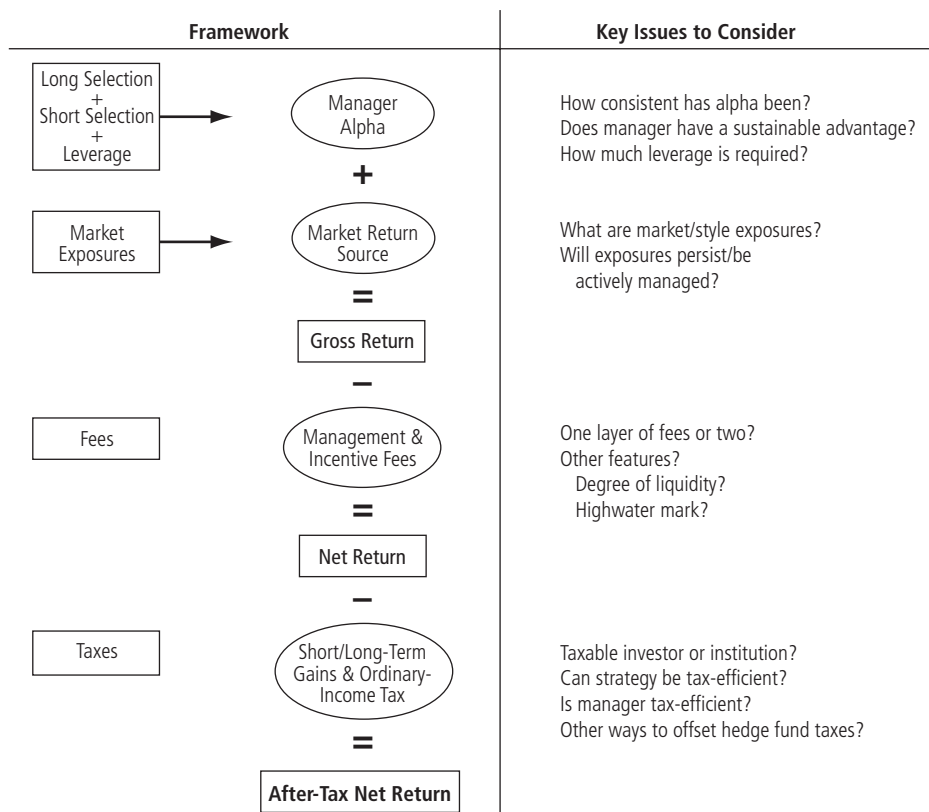
Are we saying that every hedge fund investor is best served by simply sticking to one or a couple of funds? Clearly not; a hedge fund investment, like any other, needs to be tailored to the investor’s overall portfolio and long-term goals. However, given the marginal utility of successively adding hedge funds, we counsel caution when it comes to paying a significant cost for diversifying within hedge funds.

One alternative, growing in popularity, is a so-called “multi-strategy” hedge fund, which diversifies not by hiring a group of external managers but by adopting and dynamically allocating among multiple strategies in-house. For example, such a fund might simultaneously utilize long/short equity, merger arbitrage, and convertible arbitrage strategies. Since multi-strategy funds manage their money in-house, their managers have a full view of all the positions held across all the strategies. That, in turn, allows them to take a more integrated approach to risk management and a more active stance on tax efficiency. Further, multi-strategy funds don’t add the additional layers of fees associated with funds of funds. However, the technique is not without its risks. Investors are still dependent on the manager, who may or may not be successful in overseeing such a complex framework and in choosing the best strategies or the best securities at any given time.

Regardless of whether an investor chooses a single-strategy fund, a multi-strategy fund, or a fund of funds, most important in our judgment is setting his sights on all the building blocks of return (Display 21). These components include the ability of a manager to deliver a performance premium through active security selection, the degree of leverage used, the portfolio’s exposure to market return sources, and the fee and tax costs that will detract from performance.

While, clearly, there’s no infallible guide to selecting a superior hedge fund manager, there are signs that investors should focus on: Does the manager inspire confidence that he has competitive strengths? Does he have the right team in place? A strong history? Can he articulate his strategy? Does he have a sound

The building blocks of hedge fund returns



operational, trading, and reporting infrastructure in place? Are the risks he takes reasonable in relation to the return he's seeking?

Still, even the best due diligence an investor can perform doesn't provide any guarantees. Ultimately, *allocation* is the pivotal decision for a hedge fund investment—as it is for all investing: *whether to include hedge funds in a portfolio, and if so, to what degree.* ■

5. TAILORING HEDGE FUND ALLOCATIONS

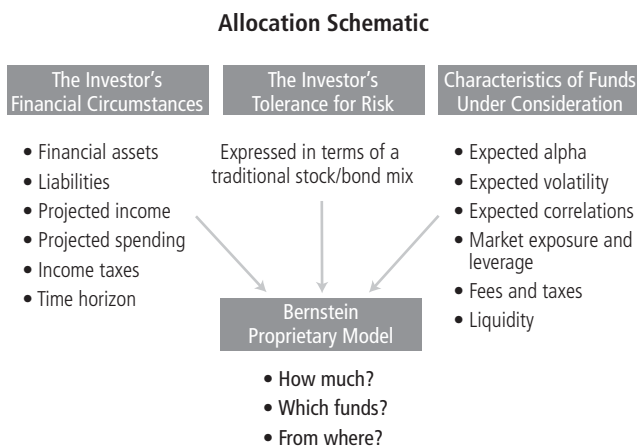
Arriving at a prudent hedge fund allocation geared to improve the investor’s overall risk/return trade-off requires that each investor’s unique circumstances be evaluated. While there will always be some art to this science, we have developed a framework that can be customized to each investor and that takes into account issues such as the uncertainty of the manager performance premium and the specific market exposures unique to the manager’s strategy. Our framework for determining allocation can be summarized by four main principles:

- Limit allocation to no more than the investor’s “excess capital.”
- Vary allocation based on risk tolerance; high-risk investors should be willing to tolerate more alpha uncertainty than low-risk investors.
- Evaluate the potential impact of various allocation alternatives on the investor’s long-term wealth.
- Allocate hedge funds as a substitute for investments with similar volatilities and market exposures—which may not be as transparent as it seems.

Display 22 is a schematic model of Bernstein’s multi-factor approach to hedge fund allocation.

Display 22

In determining an optimum hedge fund commitment, many factors should work in concert



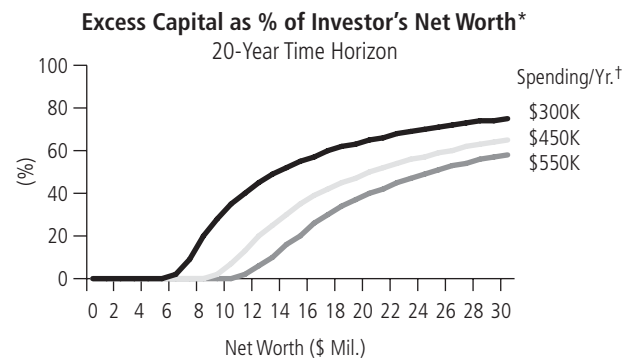
Begin with Excess Capital

In our view, given the varied risks of hedge funds, investors should commit only capital that’s not critical to their future spending needs. To quantify “excess capital,” it’s important to understand each investor’s total financial picture—her assets, risk profile, income and expenses, and time horizon. Investors also need to bear in mind that hedge funds typically have limited liquidity; withdrawals can be made only periodically.

It’s important that an allocation model be stress-tested, because if a hedge fund would put the investor’s lifestyle in jeopardy in bad times, it’s not a suitable investment. But in general, the higher an investor’s net worth and the lower her spending needs, the greater the share of her total wealth that could be deemed “excess capital”—and hence available for a hedge fund allocation, as indicated in Display 23. (This concept can be applied to institutions as well, since some may be worried about seeing their capital exhausted or depleted below a predetermined amount.)

Display 23

Our rule of thumb: Excess capital—determined by net worth and spending needs—defines the upper limit of an allocation to hedge funds



* Hedge fund recommendations are sample recommendations based upon the characteristics of a specific investor and should not be construed as representing the appropriate allocation for every investor. See “Hedge Fund Allocation Recommendations” on page 28 for a description of the allocation process and its limitations.

† Grown with inflation
Source: Bernstein

For example, consider an investor with \$10 million in assets who is spending \$300,000 per year (growing with inflation) and has a 20-year investment horizon. Our wealth-forecasting models suggest that as much as 34% of his total wealth could be deemed excess capital, while another investor—also with \$10 million, but who is spending \$450,000 per year—should consider only 7% of his wealth as his excess capital. A third investor—again with the same means but who is spending \$550,000 a year—would have no excess capital available.

But determining how much an investor can *afford* to allocate is just the starting point—the upper limit, as it were, of a hedge fund allocation. There are other key factors to consider, driven by the trade-off between the return potential of hedge funds and their multiple dimensions of risk.

Factoring In the Investor’s Risk Profile

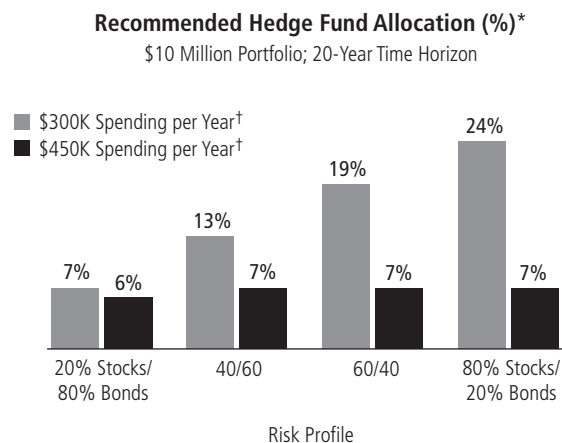
Let’s return to our investor who is spending \$300,000 per year out of his \$10 million nest egg. Assume that hedge funds fit his risk/return profile and that he’s looking at a combination of two directional funds—one low in market exposure and volatility, the other high.

The recommended allocation would vary substantially—determined not so much by the volatility of the funds but by the investor’s comfort level with risk (*Display 24*). If his tolerance for risk is very low—indicated in this case by an overall portfolio 80% in bonds with the rest in stocks—a hedge fund allocation in the range of 5% to 10% might be the best course of action. He probably shouldn’t invest more—since even the low-volatility fund has the potential for large performance dispersion, as measured by our alpha uncertainty factor. An investor with a larger appetite for risk—say he owns a portfolio 80% in *stocks*—would be willing to allocate far more to these two funds: Our analysis points to as much as 24%. For a moderate risk level, as indicated by a 60/40 mix of stocks and bonds, an allocation of just about 20% is recommended.

However, if the investor is spending \$450,000 per year and hence has less excess capital at his disposal, our analysis recommends allocating no more than 7% of his assets to the hedge funds—no matter how

Display 24

Optimum hedge fund allocations vary by the investor’s risk profile—but his spending can be more important



* Hedge funds are a mix of low- and high-volatility directional funds. Stocks are assumed to be globally diversified; bonds, diversified municipals. Also see first footnote to *Display 23*.

† Grown with inflation

Source: Bernstein

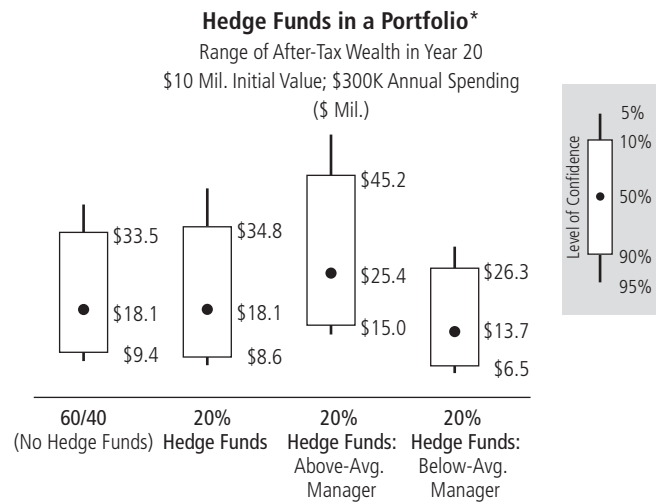
high his risk tolerance. In setting a hedge fund recommendation, spending and liquidity needs trump risk tolerance, as important a factor as that is.

Evaluating the Long-Term Impact on Wealth

It’s important for investors, both private and institutional, to be comfortable with the range of potential outcomes that a large allocation to hedge funds may bring. Returning to our hypothetical investor with \$10 million in assets and \$300,000 in annual real spending needs, let’s assume a 60/40 risk profile (*Display 25, next page*).

The leftmost box in the display presents our estimated range for the investor’s projected wealth in 20 years’ time if he owned no hedge funds in a classic 60% stock/40% bond indexed portfolio. The second box shows the range if his 60/40 portfolio included a 20% allocation divided between two directional hedge funds, one with low volatility and the other high volatility. In simulating the returns of the two hedge funds, we began by assuming that half of the funds’ alphas were above historical averages, and half below (in a universe of 10,000 trials). In effect, we were assuming that the investor had no skill in selecting managers; he was drawing from a random distribution of funds. Further, we assumed that the hedge funds were relatively tax-efficient.

Even with a limited allocation to hedge funds, the long-term wealth impact can be dramatic if a manager is especially strong or weak



*In the “above-average” and “below-average” scenarios, we assumed that the hedge funds generated alphas above and below the historical average, respectively. In all cases, hedge fund fees were assumed to be 1% for management with a 20% incentive fee and a highwater mark. Annual spending is grown with inflation. Data do not represent past performance and are not a promise of actual future results or a range of results. See Notes on Wealth Forecasting System, pages 29–30, for further details on modeling assumptions and tax rates.

Given those assumptions, we found that adding 20% in hedge funds to a traditional portfolio wouldn’t dramatically change the range of wealth. If the managers performed exceptionally well, the upside potential was a little greater; similarly, if the opposite came to pass, the downside was a little lower. But the differential was small—partly because with only 20% in hedge funds we’d limited both opportunity and risk, and partly because hedge funds’ low correlations with traditional asset classes helped put a brake on poor outcomes.

However, in the two boxes to the right, we assumed in all trials that the investor experienced either above-average or below-average hedge fund managers exclusively (third and fourth boxes, respectively). Now the picture is markedly different. There’s still a dispersion of results in both cases since a good manager can hit bad markets and vice versa, and good and bad managers vary in the degree of their skill. But the results look very different from those of the average case.

Were the investor able to select funds that posted only above-average alpha, his wealth outcome would improve dramatically versus eschewing hedge

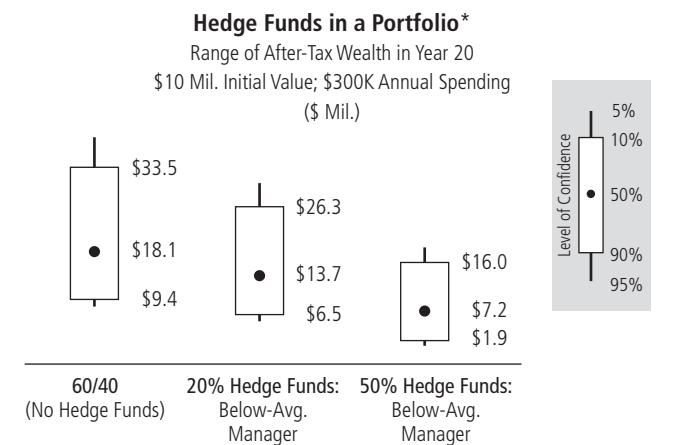
funds: \$7 million more in the median case, almost \$12 million on the upside, and an incremental \$5½ million cushion on the downside. On the other hand, if the selected funds were led by managers who generated below-average alphas, the investor’s wealth would be far lower, again in all three scenarios.⁷

As we’ve said, manager performance is the key to hedge fund success. Indeed, if an investor has no reason to believe he can choose a superior manager, he should probably *forgo* an allocation to hedge funds. The rationale for this strategy would be even stronger if the hedge fund manager paid no attention to taxes.

We also evaluated how big a risk a very high allocation to hedge funds could pose. *Display 26* compares a \$10 million portfolio with no allocation to hedge funds with a 20% allocation (our example above) and with a 50% allocation, in both cases to below-average funds. Some investors believe that they’ve identified a top manager, so the bigger the allocation the better. This is an extremely risky strategy. With a 50% allocation to two funds, both of whose manag-

Display 26

If managers wind up performing poorly, a large commitment to hedge funds can be dangerous to an investor’s wealth



*In the cases where hedge funds are a part of the asset allocation, we assumed that the hedge funds generated a below-average level of alpha. In all cases, hedge fund fees were assumed to be 1% for management with a 20% incentive fee and a highwater mark. Annual spending is grown with inflation. Data do not represent past performance and are not a promise of actual future results or a range of results. See Notes on Wealth Forecasting System, pages 29–30, for further details on modeling assumptions and tax rates.

⁷ The upside case for the third scenario and the downside case for the fourth scenario are more extreme than their respective values in the second scenario. This is because the third and fourth scenarios come closer to capturing the tail ends of the distribution of outcomes.

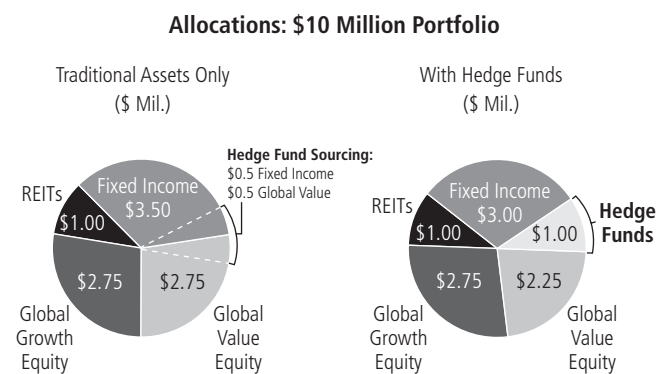
ers performed poorly, we estimated a one-in-ten chance that the investor's wealth would decline by more than 80% over a 20-year period. This compares with a downside expectation of only a 6% loss if his portfolio contained no hedge funds.

How Should Hedge Fund Allocations Be Sourced?

Once an investor has decided on the size of a commitment to a hedge fund, the sourcing of the allocation must be determined. The investor's goal normally will be to keep the volatility of her portfolio close to what it was without any hedge funds, and to avoid any unintended exposures to market and other risk factors. For example, a \$1 million allocation to a global long/short equity manager with 50% stock market exposure and a value orientation would ideally be funded with \$500,000 from a long-only global value portfolio and \$500,000 from a fixed income portfolio (*Display 27*)—or from portfolios as close as possible to those constructions.

Display 27

Sourcing hedge funds: Draw from traditional assets configured as closely as possible to the funds being added



Rule #1: Customize; Rule #2: Don't Forget Rule #1

Finally, hedge funds can provide meaningful opportunities for either adding return potential and/or reducing traditional risk—volatility—for qualified investors with excess capital. But as we've emphasized, hedge funds entail their own risks—mostly connected with the vagaries of manager performance and hedge fund sensitivity to market shocks. Investors should understand the nature and magnitude of these risks before earmarking an allocation to hedge funds. In practical terms, they need to be aware of how widely the returns of individual hedge fund managers can vary, as well as their strategies. Investors can't change a manager's strategy—and the resources at their disposal for selecting a top performer (or a top fund of funds manager) are clearly limited. Indeed, for too many investors, picking a hedge fund is chasing yesterday's star.

But the prudent investor considering hedge funds should amass the best information he can—as is the case in all investment decisions. He should utilize the resources of an established investment manager. And of primary importance, the prudent investor should evaluate the funds in light of his overall portfolio. But that's not the end of the story. Once an investor buys into a hedge fund, its performance should be monitored regularly—even if the manager's strategies aren't always transparent or the fund's liquidity is limited; in fact, regular monitoring is even more important in those circumstances. With a comprehensive plan of that nature in place, investors are more likely to reap hedge funds' considerable upside. ■

APPENDIX

1. MORE INFORMATION ABOUT HEDGE FUNDS

A. Advanced Tools

The wide range of tools available to hedge fund managers plays a critical role in their strategies. Many techniques are employed with the goal of reducing risk, but they can also add risk. They may include:

- **The ability to go long and short**, which allows hedge fund managers to profit from falling as well as rising prices. For example, when a stock is sold short, the investor borrows the shares and immediately sells them, giving the cash proceeds to the lender as collateral—which generates interest for the investor. Eventually the investor has to give back the borrowed stock, which he hopes will have fallen in the interim, and hence can be returned at a lower price. The investor can then pocket the difference. Shorting can hedge unwanted risks by reducing a portfolio's exposure to the broad market, to a specific country or sector, or to factors associated with an individual security. But it can also add risk, since the technique bucks the stock market's general upward trend (and there's no limit to how much a stock can gain—and therefore to how much a short-seller could theoretically lose).
- **Access to a broad range of financial instruments** permits hedge funds to more efficiently control market exposure and to take advantage of opportunities that may not be widely available or may be too expensive for direct transactions. The list of instruments includes derivatives such as options, futures, and swaps linked to stock or bond indexes, individual securities, currencies, or even changes in interest rates. A hedge fund might also include investments such as loans and private equity, expanding the investor's holdings beyond the liquid financial markets.
- **Leverage** is the practice of borrowing money to add to an investment position in order to amplify returns. It can be accomplished through borrowing (funds or securities) or the use of derivatives—both of which increase the potential for loss as well as profit. Some hedge fund strategies that attempt to exploit small pricing discrepancies in the marketplace require large amounts of leverage in order to generate an attractive return for investors.
- **Flexible investment mandates** enable hedge funds to pursue opportunities with fewer constraints than typically imposed on traditional managers. Hedge funds can move quickly in and out of markets, take concentrated positions, and exploit unique sources of potential return—such as wagering on a merger agreement whose closure is uncertain.

B. Fund Strategies

Popular **market-neutral strategies** include:

- **Event-driven**, of which there are two main types: *merger arbitrage*, which seeks to profit from merger transactions as they come to fruition (or as they do not); and *distressed*, which seeks to profit from companies that are approaching or emerging from bankruptcy or other financial trouble. The requisite manager skills here include asset valuation, capital structure analysis, and evaluation of the details and timing of bankruptcies and mergers.
- **Equity market-neutral strategies** rely on the manager's ability to distinguish between stocks that will go up in price and stocks that will go down—i.e., the ability to value stocks. In our judgment, the key success factor here is the quality of the research used to select long and short positions. In addition, investors are betting on the manager's ability to keep net exposure to the market at a minimum and to control the fund's dependence on related factors, such as style and sector.
- **Arbitrage strategies** typically seek to exploit relatively small mispricings between closely related securities—for example, a convertible bond and the common stock of the same issuer. Success factors include the ability to value these securities, often through the use of sophisticated statistical models; skill in setting and managing the net invested position; and the ability to manage portfolio risk, including leverage, which is often employed to a high degree.

Popular **directional strategies** include:

- **Long/short equity strategies**, the largest hedge fund category for many years, are typically exposed to the long-term upward trend in the stock market, although

the level of market exposure varies considerably by fund. As with market-neutral long/short funds, these strategies rely on the manager's ability to distinguish between stocks poised to rise in price and their opposite counterparts. Long/short equity strategies encompass subcategories based on investment style

(growth or value), geography (U.S. or international), and economic sector.

- **Global asset allocators** bet on the direction of broad asset baskets such as commodities, currencies, interest rates, or country stock markets. These strategies include global macro and managed futures.

Summary of Strategies

	Primary Skills Required	Return & Risk Drivers: Degree of Importance		
		Market	Security Selection	Leverage
Market-Neutral				
Equity Market-Neutral	Stock valuation; quantitative analysis	Low	High	Low
Arbitrage	Security valuation; quantitative analysis; financial modeling	Low	Moderate	High
Event-Driven	Deal valuation; asset valuation; capital-structure analysis; legal analysis	Low to Moderate	High	Low
Directional				
Long/Short Equity	Stock valuation	Moderate	High	Low
Global Asset Allocators	Macroeconomic and quantitative analysis	Moderate	Moderate	High

See page 28 for information about the TASS database, which we used in analyzing hedge fund returns.

C. How a Market-Neutral Hedge Fund Works

To the right is a hypothetical example of how a market-neutral fund might earn its return. To neutralize market exposure, the manager might invest (buy long) \$100 in a group of securities he thinks will outpace the market—which we've assumed gains 9%—and at the same time sell short \$100 worth of securities he believes will underperform. (The fund controls \$200 of stock, but because the shares that are sold short are borrowed rather than bought outright, the manager needs only \$100 of capital to fund the positions. In other words, the fund is leveraged two-to-one.) Since the fund's longs will tend to benefit from rising markets and its shorts from falling markets, their effects offset each other, netting a 0% return *from the market*, whether it goes up or down. Of course, the manager's hope is that his longs and shorts each *generate alpha*, and let's say they do; we assume that the longs go up by three percentage points more than the market, with the shorts underperforming by the same amount.

The fund has earned a total alpha return of 6%. It will also pick up a return in line with the prevailing cash rates—let's say 4%. That's because the fund manager can invest the proceeds from the short sales in Treasury bills

Disaggregating Hedge Fund Returns

	Market Exposure	Market Return	Alpha	Interest on Short Sales	
Hypothetical Results					
Buy Long (Hope Stocks Beat Market)	\$100	9%	+ 3%	N/A	= 12.0%
Sell Short (Hope Stocks Underperform)	\$(100)	(9)%	+ 3%	+ 4%	= (2.0)
Total Portfolio (Indifferent to Stock Market Direction)	\$0	0%	6%	4%	= 10.0%

while they are held as collateral until the shorts are covered. In total, the fund has earned 10% (pre-fee)—modestly above the S&P's assumed return despite a strategy that removes all market exposure.*

* Of course, had the manager's bets gone against him, the fund would have generated zero or negative alpha. The hypothetical example is a general description of a typical market-neutral hedge fund strategy and is not meant to describe the investment strategy or returns of any particular AllianceBernstein hedge fund investment.

D. Hedge Fund Fees and Taxes: A Hypothetical Example

	Typical Hedge Fund	Tax-Efficient Hedge Fund	Typical Fund of Funds (FOF)
Gross Return*	12.0%	12.0%	12.0%
Management Fee to HF	(1.0)	(1.0)	(1.0)
Incentive Fee to HF@20%	(2.2)	(2.2)	(2.2)
Return Net of Fees	8.8%	8.8%	8.8%
Management Fee to FOF	N/A	N/A	(1.0)
Incentive Fee to FOF@10%	N/A	N/A	(0.8)
Net Pretax Return	8.8%	8.8%	7.0%
Taxes [†]	(3.1)	(1.3) ‡	(2.5)
Net After-Tax Return	5.7%	7.5%	4.5%

*Hypothetical return inclusive of fund operating expenses, but before the deduction of management and incentive fees

†Assumes 35% of pretax return is lost to taxes for the “typical” fund and 15% for the “tax-efficient” fund

‡Taxes for the “tax-efficient” fund do not include a future tax liability that may result from the deferral of unrealized gains, which reduces the tax cost for the current year.

Source: Bernstein

2. INFORMATION ON DATABASES AND HEDGE FUND ALLOCATION

The TASS Database

The TASS database includes the net-of-fee performance of individual hedge funds whose managers have elected to report to the database. As of December 2005, more than 6,000 funds were included in the database. In constructing our Hedge Fund, Market-Neutral Hedge Fund, Directional Hedge Fund, and Fund of Funds indexes, we included the performance of funds only after their managers decided to report to the database, and only for those funds that had at least \$10 million in assets under management. We also included the performance of all funds in the database that are no longer currently reporting. The indexes are equal-weighted. We calculated after-tax returns using ordinary-income and capital-gains tax rates at the highest marginal brackets in effect each month over the 1996–2005 period. In the case of directional hedge funds, we assumed that 75% of the return

was characterized as ordinary income and 25% as long-term capital gain; for market-neutral funds we assumed 90% ordinary income and 10% capital gain. In the calculations for funds of funds we assumed a weighted average of the two fund categories.

The Mercer Database of Equity and Fixed Income Managers

In analyzing traditional active long-only equity manager and fixed income manager returns, we used the Mercer database of large-cap equity and fixed income managers. The database includes the net-of-fee performance of individual managers. As of December 2005, more than 1,400 funds were included in the large-cap equity manager database and more than 500 funds in the fixed income database. In both cases, we included the performance of all funds in the database that are no longer currently reporting.

Hedge Fund Allocation Recommendations

The recommendations regarding the allocations to hedge funds are based on an analysis and consideration of the financial circumstances and risk profile of one specific investor. The allocations to hedge funds in total reflect the fact that there is unusual uncertainty regarding the ability of any hedge fund to achieve its premium goals, and therefore long-term risk is higher than it might appear. This leads us to limit the investor’s overall hedge fund exposure in a way that varies with the risk profile of the investor. These recommendations are intended to provide general guidance only and may not be suitable for all investors with that type of stock and bond allocation. The characteristics of hedge funds vary widely and may contain aggressive investment strategies designed for investors who understand and are willing to accept the risks associated with investing in funds that may utilize various investment strategies to enhance returns, including the use of leverage, investment in futures and options, and the technique of short-selling securities. There are substantial risks associated with investment in hedge funds, including the loss of all capital invested. Sales of hedge funds are restricted to investors who meet certain qualification standards.

This document is neither an offer to sell nor a solicitation of an offer to buy shares or interests in any AllianceBernstein hedge fund. The offering of any AllianceBernstein hedge fund is made only pursuant to the fund’s Confidential Memorandum, Subscription Agreement, and if available, current financial statements, all of which must be read in their entirety. No offer to purchase shares or interests will be accepted prior to receipt by the offeree of these documents and the completion of all appropriate documentation.

NOTES ON WEALTH FORECASTING SYSTEM

1. Purpose and Description of Wealth Forecasting Analysis

Bernstein's Wealth Forecasting Analysis is designed to assist investors in making long-term investment decisions about their allocation of investments among categories of financial assets. Our planning tool consists of a four-step process: (1) Client-Profile Input: the client's asset allocation, income, expenses, cash withdrawals, tax rate, risk-tolerance level, goals, and other factors; (2) Client Scenarios: in effect, questions the client would like our guidance on, which may touch on issues such as when to retire, what his cash-flow stream is likely to be, whether his portfolio can beat inflation long term, and how different asset allocations might impact his long-term security; (3) The Capital Markets Engine: a model that uses our proprietary research and historical data to create a vast range of market returns, which takes into account the linkages within and among the capital markets (not Bernstein portfolios), as well as their unpredictability; and finally (4) A Probability Distribution of Outcomes: 90% of the estimated ranges of returns and asset values the client could expect to experience, based on the assets invested pursuant to the stated asset allocation, and represented within a range established by the 5% and 95% probabilities. We often focus on the 10th, 50th, and 90th percentiles as representative of the upside, median, and downside case, respectively. However, outcomes outside this range are expected to occur 20% of the time; thus, the range does not establish the boundaries for all outcomes. Expected market returns on bonds are derived taking into account yield and other criteria. An important assumption is that stocks will, over time, outperform long bonds by a reasonable amount, although this is in no way a certainty. Moreover, actual future results may not meet Bernstein's estimates of the range of market returns, as these results are subject to a variety of economic, market, and other variables. Accordingly, the analysis should not be construed as a promise of actual future results, the actual range of future results, or the actual probability that these results will be realized.

2. Rebalancing

Another important planning assumption is how the asset allocation varies over time. We attempt to model how the portfolio would actually be managed. Cash flows and cash generated from portfolio turnover are used to maintain the selected allocation among cash, bonds,

stocks, REITs, and hedge funds, as appropriate, over the period of the analysis. Where this is not sufficient, an optimization program is run to trade off the mismatch between the actual allocation and targets against the cost of trading to rebalance. In general, the portfolio will be maintained reasonably close to the target allocation. In addition, in later years there may be contention between the total relationship's allocation and those of the separate portfolios. For example, suppose an investor (in the top marginal federal tax bracket) begins with an asset mix consisting entirely of municipal bonds in his personal portfolio and entirely of stocks in his retirement portfolio. If personal assets are spent, the mix between stocks and bonds will be pulled away from targets. We put primary weight on maintaining the overall allocation near target, which may result in an allocation to taxable bonds in the retirement portfolio as the personal assets decrease in value relative to the retirement portfolio's value.

3. Expenses and Spending Plans (Withdrawals)

All results are generally shown after applicable taxes and after anticipated withdrawals and/or additions, unless otherwise noted. Liquidations may result in realized gains or losses, which will have capital-gains-tax implications.

4. Modeled Investment Alternatives

The following were used in this analysis to model various investment alternatives:

Investment Alternative	Modeled as...	Annual Turnover Rate
Intermediate-Term Diversified Municipal Bonds	AA-Rated diversified municipal bonds of 7-year maturity	30%
Intermediate-Term Taxable Bonds	Taxable bonds with maturity of 7 years	30
U.S. Value Stocks	S&P/BARRA Value Index	15
U.S. Growth Stocks	S&P/BARRA Growth Index	15
Developed International Stocks	MSCI EAFE Unhedged	15
Emerging Markets Stocks	MSCI Emerging Markets Index	20
Directional Hedge Funds: High Volatility	Annualized Volatility: 16%; Beta: 0.8	50*
Directional Hedge Funds: Low Volatility	Annualized Volatility: 8%; Beta: 0.2	50*

** We modeled tax-efficient hedge funds, with half the turnover generating short-term gains, and half long-term gains. We assumed that over time this would result in the investor losing 15%–20% of his return to taxes.*

5. Volatility

Volatility is a measure of dispersion of expected returns around the average. The greater the volatility, the more likely it is that returns in any one period will be substantially above or below the expected result. The volatility for each investment alternative used in this analysis is listed in Note #9 below. In general, two-thirds of the returns will be within one standard deviation. For example, assuming that stocks are expected to return 8.0% on a compounded basis and the volatility of returns on stocks is 17.0%, in any one year it is likely that two-thirds of the projected returns will be between (8.9)% and 28.9%. With intermediate government bonds, if the expected compound return is assumed to be 5.0% and the volatility is assumed to be 6.0%, two-thirds of the outcomes will typically be between (1.1)% and 11.5%. These ranges are slightly skewed relative to what one might expect because the volatility calculation assumes the returns are log-normally distributed. Bernstein's forecast of volatility is based on historical data and incorporates Bernstein's judgment. It should also be noted that volatility varies in different time periods, particularly for inflation and fixed income assets.

8. Tax Rates*

Bernstein's Wealth Forecasting Analysis has used the following marginal tax rates for this analysis:

Start Year	End Year	Federal Income-Tax Rate	Federal Capital-Gains-Tax Rate	Qualified Dividend Rate	State Income-Tax Rate	State Capital-Gains-Tax Rate
2006	2008	35.00%	15.00%	15.00%	6.00%	6.00%
2009	2010	35.00	20.00	35.00	6.00	6.00
2011	2033	39.60	20.00	39.60	6.00	6.00

*Federal tax rates are blended with applicable state tax rates by including, among other things, federal deductions for state income and capital-gains taxes.

9. Assumptions: Capital-Market Statistics

	Mean 20-Year Growth Rate	Mean Annual Return	Mean Annual Income	1-Year Volatility	20-Year Annual Equivalent Volatility
Int.-Term Diversified Munis	4.3%	4.5%	4.4%	4.3%	3.9%
Int.-Term Taxable Bonds	5.4	5.7	5.3	5.9	4.9
U.S. Value Stocks	8.0	9.9	3.1	18.2	13.6
U.S. Growth Stocks	8.0	10.3	1.7	19.7	15.8
Developed Int'l Stocks	9.3	10.3	3.0	21.7	14.5
Emerging Markets Stocks	5.4	10.3	3.3	29.2	21.2
Directional Hedge Funds: High Volatility	8.4	9.7	2.7	16.0	19.4
Directional Hedge Funds: Low Volatility	5.1	5.4	3.2	8.0	14.0
Inflation	2.5	2.7	N/A	1.6	6.4

Based on 10,000 simulated trials, each consisting of 20-year periods. Reflects Bernstein's estimates and the capital-market conditions of March 9, 2006. Does not represent any past performance and is not a guarantee of any future specific risk levels or returns, or any specific range of risk levels or returns.

6. Technical Assumptions

Bernstein's Wealth Forecasting Analysis is based on a number of technical assumptions regarding the future behavior of financial markets. Bernstein's Capital Markets Engine is the module responsible for creating simulations of returns in the capital markets. These simulations are based on inputs that summarize the condition of the capital markets as of March 9, 2006. Therefore, the first 12-month period of simulated returns represents the period from March 9, 2006, through March 9, 2007, and not necessarily the calendar year of 2006. A description of these technical assumptions is available on request.

7. Tax Implications

Before making any asset allocation decisions, investors should review with their tax advisors the tax liabilities generated by the different investment alternatives presented herein, including any capital gains that would be incurred as a result of liquidating all or part of the investor's portfolio, investments in municipal or taxable bonds, etc.

BERNSTEIN WAS ESTABLISHED IN 1967 to manage investments for private families and individuals. Its mission grew to include sell-side research and institutional asset management, but advising private clients has remained a central focus throughout our successful history. At year-end 2005, we oversaw some \$75 billion in private capital for a clientele including some of the nation's most prominent families and individuals.

One of the chief ways Bernstein, a unit of AllianceBernstein L.P., serves its clients is through the firm's Wealth Management Group—an ensemble of experienced professionals that melds our money-management experience with in-depth knowledge of trust and estate planning, tax management, and other areas of importance to wealthier individuals and families. At its core is an ever-advancing state-of-the-art wealth-forecasting tool designed to help clients make better-informed decisions on the issues that concern them most—including retirement planning, complex asset-allocation strategies, annual budgeting, single-stock strategies, multigenerational investment planning, and philanthropic giving. The Wealth Management Group works closely with clients, their Bernstein Advisors, and when appropriate, their legal and tax advisors to develop sophisticated investment strategies tailored to each client's unique situation.

