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Interpreting Morningstar's Alternatives Categories

A category guide to navigating the increasingly complex world of alternative investing.



by
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Ten years ago, the investing world could be easily compartmentalized into stocks, bonds, and cash. Since then, however, hedge funds have transformed the investment landscape with sophisticated trading strategies that simply don't fit into the traditional Morningstar Style Box™. Over time, a few of these hedge fund strategies found their way into registered mutual funds, prompting Morningstar to introduce a long-short mutual fund category in 2006. The first of its kind, the category originally served as a broad catchall for anything "alternative" that sought to hedge risk or generate an absolute return.

Since that time, both the number and variety of liquid alternative offerings have expanded at a rapid clip—more than 100 alternative mutual funds and exchange-traded funds launched in the past year alone (see Exhibit 1). To keep pace with this proliferation of registered alternatives, Morningstar expanded its alternatives-categorization system, first in

2008, when the currency category was added, and again in 2010, with the introduction of the market-neutral category. The bear-market category, launched back in 2003, also eventually migrated to the broad "alternatives" umbrella. In April 2011 the original long-short category was overhauled and divided into three new groups: managed futures, multialternative, and long-short equity, bringing the total number of alternatives categories to six.

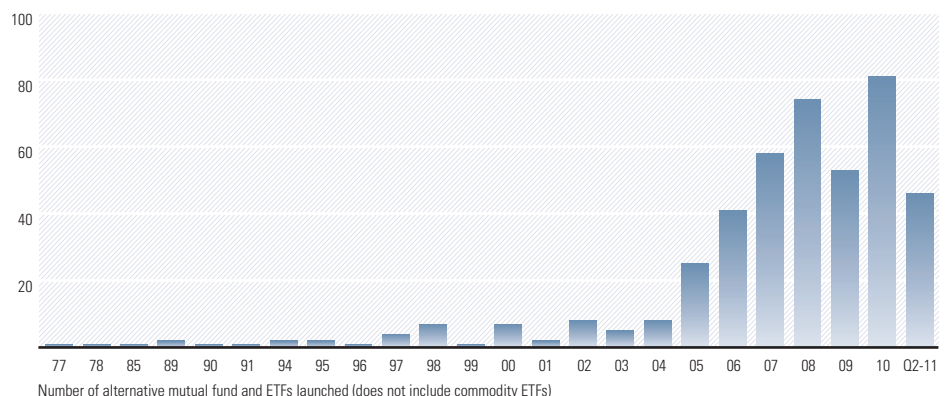
An appropriate alternatives allocation can improve a portfolio's diversification and risk-adjusted return over time. However, the universe varies widely both across and even within the different categories. Not all alternatives are created equally, and investors must carefully consider the unique role each strategy can play in a portfolio before making an allocation.

Long-Short Equity

Employing the oldest hedge fund strategy in the book, funds in the rebranded long-short equity category take both long and short positions in equities and related derivatives with the intention of hedging against the downside. Some funds, like Diamond Hill Long-Short **DIAMX**, use bottom-up research to make directional bets such as investing in undervalued securities and short-selling those they expect to decline in price. Others, like Gateway **GATEX**, may simply hedge long stock positions through ETFs or derivatives. Investors should carefully consider a manager's hedging techniques because short-sellers will be limited when shorting opportunities are restricted or hard to come by and hedgers won't be able to extract any alpha from the short side of the market.

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Exhibit 1: Growth in Liquid Alternative Offerings



Long-short funds are highly correlated with equities (the category's average five-year correlation with the S&P 500, using monthly data through May, is 0.94) and typically maintain long exposure to the stock market. However, they also target a lower beta, which reduces the magnitude of their returns—the average long-short fund lost 18.6% in 2008, roughly half the S&P's losses. On the flip side, performance during the market's recovery has seriously lagged—on average the category has gained 23.3% since March 2009, compared with the market's 91.8% surge over the same period. Because of their net long exposure, these funds are best suited for investors seeking downside protection coupled with the ability to leave on some risk. In terms of allocation, they should replace part of an investor's long-only stock portfolio.

When looking at the category's annualized five-year returns, 5-star Robeco Long/Short Equity **BPLSX** comes out on top at 16.2%. Wasatch Long/Short **FMLSX** is another category leader, gaining 6.7% annualized over the past five years and earning 4 stars. Since long-short funds are designed to protect against the downside, risk-adjusted performance is the best way to compare these funds. Using monthly data through May, Robeco Long/Short Equity and Wasatch Long/Short generated five-year Sharpe ratios of 0.77 and 0.42, respectively, outpacing both the category's average ratio of negative 0.12 and the S&P 500's ratio of 0.17.

Market-Neutral

While market-neutral funds also take long and short equity positions, they attempt to hedge out all market exposure by taking offsetting positions. Similar to market-neutral funds, arbitrage funds hedge out broad market exposure, zeroing in on nontraditional risk factors, such as the illiquidity and mispricing of convertible securities (in the case of convertible arbitrage) or the probability of an announced merger deal closing (in the case of merger arbitrage). Betas relative

to the S&P 500 for both market-neutral and arbitrage funds usually hover close to zero, as demonstrated by the category's average five-year beta of 0.00 (using monthly data through May).

Market-neutral funds strive to provide small but steady returns in all market conditions. Since most market risk has been hedged away, these typically unleveraged funds rarely provide blockbuster returns. They should, however, lose less money in market downturns and therefore help stabilize an investor's portfolio. On average, the market-neutral category lost 0.33% in 2008, only a small fraction of the S&P's 37% loss. Furthermore, the category's average volatility over the past five years, as measured by standard deviation, was less than a third of the market's: 5.27% versus 17.85%. Because this low-risk/low-return profile makes market-neutral funds comparable to bonds, investors tend to use these strategies to replace part of their fixed-income allocations.

With a five-year Sharpe ratio of 0.75, TFS Market Neutral **TFSMX** has delivered superior risk-adjusted performance in this category and against the broader market (using monthly data through May). At a net expense ratio of 2.50%, the fund does not come cheap, but management has compensated investors well with consistent category-topping returns. TFS Market Neutral recently closed to new investors again, but AQR Diversified Arbitrage **ADAIX** provides a good alternative. Although it is one of the youngest funds in the market-neutral category, AQR Diversified Arbitrage has posted promising performance since its January 2009 launch and has the second-highest one-year Sharpe ratio of 3.97 (following The Merger Fund **MERFX**), using monthly data through May. The fund's refreshingly low net expense ratio of 1.21% is also a plus.

A more niche market-neutral offering, The Merger Fund, which seeks to profit from

event-driven arbitrage opportunities, has also produced strong risk-adjusted returns and boasts the highest one-year and three-year Sharpe ratios in the category (5.37 and 1.06, respectively). With a net expense ratio of 1.45%, Merger is well below the market-neutral category average of 1.93%. However, at \$4.94 billion in assets, it is by far the largest fund in the category. Investors should be cognizant of the capacity constraints faced by market-neutral and arbitrage strategies where the investment opportunities are limited (for example, small-capitalization stocks, total number of merger deals, or total convertible-bond issuance), especially for larger funds. Capacity constraints may lead to lower returns.

Managed Futures

Managed-futures strategies seek to profit from momentum across many different asset classes, using systematic, rules-based trading tactics. These programs take long positions in futures contracts exhibiting positive price trends and short positions in those demonstrating negative trends. Although small, the category exhibits great diversity, and structures range from index-tracking ETFs, exchange-traded notes, and mutual funds to active single-manager strategies and funds of managed-futures hedge funds. The expenses also vary widely, from 75 basis points to 2.54% for mutual funds of hedge funds, whose underlying funds charge management and performance fees that are not included in the expense ratio. For example, if a fund of five underlying hedge fund managers who charge an average of 2% management fee and 20% performance fee earns 10%, the net return to investors after the additional 2% mutual fund expense ratio is less than 4%.

Despite the high fees charged by some of the newer offerings, managed-futures funds have quickly gained recognition and assets over the past few years following the strategy's chart-topping performance in 2008.

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The Morningstar Global Trend Hedge Fund Index (soon to be renamed), which tracks managed-futures strategies in hedge fund wrappers, increased approximately 10% in 2008, compared with the S&P 500 Index's 37% loss. The strategy profited in 2008 and again in 2010 because of its focus on longer-term momentum investing but fell short in 2009 when the markets experienced some short-term swings.

The new category currently includes 18 funds, making it one of the smallest and youngest Morningstar categories in terms of fund offerings. Most of these constituents launched after 2008, but the oldest fund in the category, Rydex|SGI Managed Futures Strategy **RYMTX**, launched in March 2007. The number of offerings will likely increase as advisors are expecting to allocate more to managed-futures strategies over the next five years, according to the Morningstar/Barron's 2010 Alternative Investment Survey. Funds in the managed-futures category have already received \$1.82 billion in inflows so far this year, just shy of the currency category's \$1.86 gain and the second-most of any alternatives category.

Managed-futures strategies' proven ability to zig when other investments zag makes them a good long-term portfolio diversifier. Although allocation can be tricky, the most prudent approach is to reallocate assets from the riskiest part of an investor's portfolio to managed-futures strategies. For those with a traditional 60/40 portfolio, this would be the equity allocation. Although it can be tempting, investors should not try to time managed-futures investments because it's nearly impossible to predict when momentum will and won't work. For example, investors who allocated after 2008 would have been sorely disappointed in 2009, when the category lost an average 5.8% because of lack of sustained up or down trends in various markets.

So far in 2011, managed-futures strategies focused on commodities have delivered the best results. Rydex|SGI Long/Short Commodities Strategy **RYLBX** posted the category's strongest one-year Sharpe ratio of 1.31 (using annualized weekly data through May). Direxion Commodity Trends Strategy **DXCTX** also outperformed over the same period with a ratio of 1.07. However, all funds in the managed-futures category fell short of long-only commodities strategies over the same period. Morningstar's Long-Only Commodity Index delivered a one-year Sharpe ratio of 2.41. While long-only commodity investments have given investors a good ride this year, they haven't always (because of contango in the underlying futures contracts), and therefore the opportunity to tactically short or take no position is important with futures-based commodity strategies. Most of the funds in the managed-futures category, though, are diversified across asset classes, as not all types of futures contracts will exhibit momentum all the time.

Multialternative

Also recently introduced, the multialternative category houses funds that offer investors exposure to several different alternative asset classes and investment tactics. The main draw to these funds is that they can be used as a one-stop-shop alternatives allocation. Still stinging from 2008, investors are anxiously seeking ways to better protect their portfolios from downside risk. The staggering array of alternatives options, however, has left many feeling overwhelmed. These diversified, multistrategy funds help to simplify the asset-allocation process.

The category currently holds 64 distinct multialternative funds, making it the second-largest alternatives category after long-short equity, which now contains 73 funds. More and more of these multialternative funds are popping up, and discerning any competitive advantages among the many choices is becoming more difficult. When

allocating to a multialternative fund, investors should specifically seek exposure to strategies not already incorporated in their portfolio. The net expense ratio should also be carefully considered because many of the category's constituents are funds of funds, which charge an extra layer of fees.

Within the multialternative category, Direxion Spectrum Select Alternative **SFHYX** has posted the best three-year return (11.1%), earning it a 5-star three-year rating. Absolute Strategies **ASFIX** (closed to new investors) has earned the same 5-star three-year rating but has delivered only 2.5% over the past three years because of its relatively lower level of risk. Investors should be aware that the average multialternative fund takes on significant levels of stock market exposure (the average five-year beta and correlation with the S&P 500, using monthly data through May, are 0.43 and 0.95, respectively) and therefore may provide fewer diversification benefits than other alternatives strategies. Furthermore, some multialternative funds provide exposure to unhedged or more-traditional asset classes such as public REITs, which are also highly correlated to stocks.

Currency

Currency portfolios typically invest in multiple currencies through the use of short-term money market instruments and derivatives, like forward contracts or swaps. Lately these funds have received significant attention as investors seek ways to hedge against continued depreciation of the U.S. dollar. In May 2011 the currency category received inflows of \$672 million, the largest monthly inflow since the end of 2009.

While most of the category's 16 funds take directional bets against the U.S. dollar, a few funds aim to profit from a rising dollar, while others trade non-U.S.-dollar currency pairs, carry strategies (long high-yielding and short low-yielding currencies), or momentum tactics. About two thirds of the

category's constituents are actively managed, while the remainder track indexes. Because currencies tend to be a very liquid asset class, these types of strategies work well in mutual funds and ETFs.

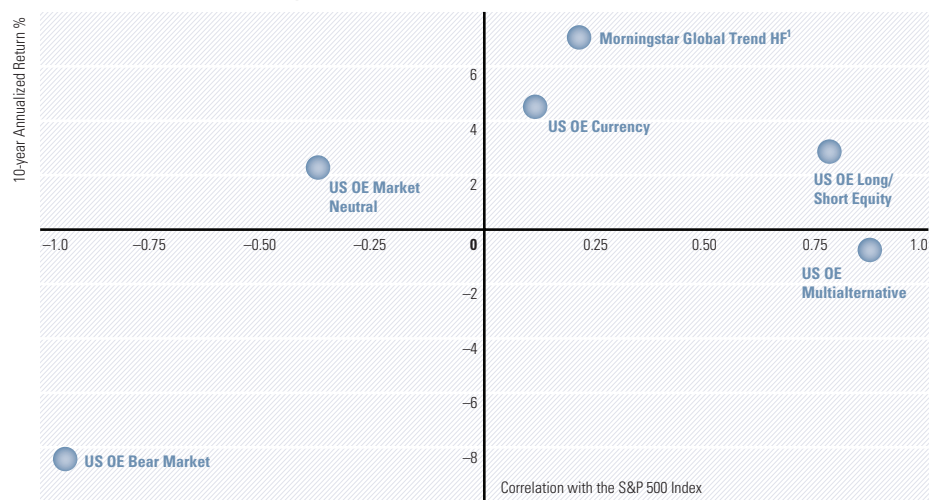
The Merk Hard Currency Fund **MERKX**, which seeks to profit from a rise in developed-markets currencies versus the U.S. dollar, has delivered the highest five-year annualized total return and Sharpe ratio (through May) of the category—7.22% and 0.53, respectively. Over that period the fund has also outperformed the BarCap Global Aggregate Bond Index. With a net expense ratio of 1.30%, it's one of the category's better deals. Franklin Templeton Hard Currency **ICPHX** has also been a strong performer, delivering 7.97% annualized over the past 10 years while taking on bondlike volatility. The fund's net expense ratio of 1.18% also makes it attractively priced. Because unleveraged currency funds tend to exhibit risk and return characteristics similar to bond funds, an allocation to currencies can be funded out of an investor's traditional fixed-income allocation.

Bear-Market

Bear-market funds employ the most controversial alternatives strategy. Funds in this category bet on an anticipated stock market decline by either shorting individual stocks or an entire index, such as the S&P 500. The fund makes money if equity prices decline. However, in the event of a broad market rally, these funds will severely underperform. The strategy can be employed actively or passively through inverse ETFs and mutual funds, although only four of the 42 bear-market funds in the database are actively managed. Short positions typically account for 60% to 100% of fund assets.

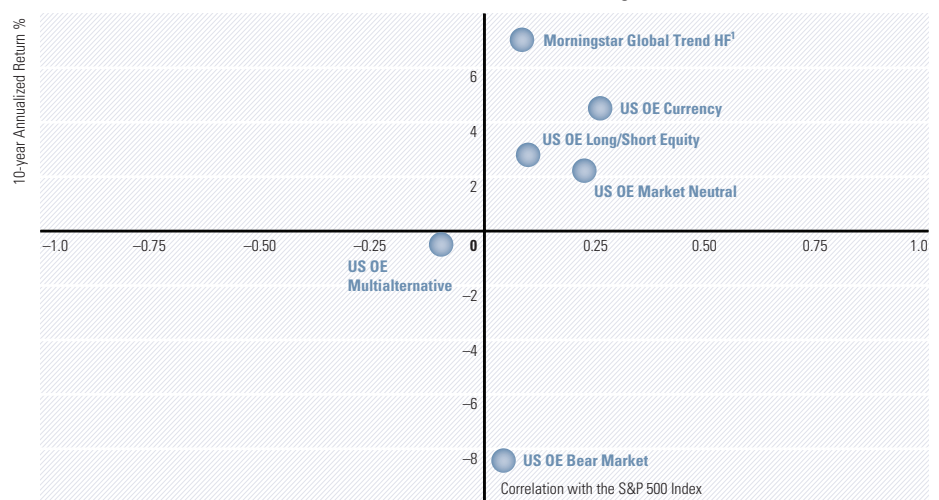
Bear-market funds can be used in a portfolio in two ways, neither of which Morningstar recommends. First, investors can try to time the market by buying a bear-market fund when they expect the market to fall and then sell in

Exhibit 2: Correlation (with the Barcap US Agg Bond Index) vs. Annzed. Return for Alternative Mutual Fund Categories



1 We substituted the short-term history of the U.S. OE Managed Futures (mutual fund) category with the seven-year (since-inception) annualized return of the Morningstar Global Trend Hedge Fund Index.

Exhibit 3: Correlation (with the S&P) vs. Return for Alternative Mutual Fund Categories



1 We substituted the short-term history of the U.S. OE Managed Futures (mutual fund) category with the seven-year (since-inception) annualized return of the Morningstar Global Trend Hedge Fund Index.

anticipation of a rebound. Time and again, however, this strategy doesn't work for most investors—short-term market movements are too difficult to predict. Secondly, investors can hold a bear-market fund as part of a long-term investment strategy. But because most investors expect the equity market to rise over time, one period of strong performance will likely fail to compensate for several years of poor performance. Over the past 10 years, bear-market funds have fallen at an annualized rate of 9.73%, landing it at the bottom of Morningstar's 82 categories with 10-year track records.

The Long and the Short of It

The defining characteristic of an alternatives investment is that it generates a risk/return profile different from traditional stocks and bonds. While these six categories all fit the bill, they still exhibit great diversity in terms of historical returns and correlations. Exhibits 2 and 3 map out Morningstar's alternative mutual fund categories' 10-year returns and correlations to traditional stock and bond indexes. It's safe to say that all investors should incorporate alternatives investments for their diversification benefits, but determining the right ones requires further evaluation. **MM**

Quant Corner: The Impact of Skewness and Fat Tails on the Asset-Allocation Decision

Exploring M-CVaR optimization, a promising alternative to traditional MVO.



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The financial crisis of 2008 has led many investors to search for tools that help to minimize downside risk in a portfolio. Unfortunately, the most commonly used tool for asset allocation, the Markowitz mean-variance optimization, or MVO, fails to account for the “tail risks” that investors seek to avoid. The Markowitz mean-variance optimization framework relies only on the mean and variance parameters of a normal distribution, even though asset class returns are not normally distributed. Considerable evidence shows that investor preferences go beyond mean and variance to higher moments of a return distribution—skewness and kurtosis—which help to measure downside risk.

Although numerous alternatives to the mean-variance optimization framework have appeared in the literature, some of which attempt to incorporate the skewness and kurtosis of non-normal distributions, no clear leader has emerged. The lack of an agreed-upon alternative to MVO has slowed the development of practitioner-oriented tools, which have been stuck on MVO for more than 50 years. The biggest challenge to creating an alternative to MVO is the difficulty of estimating required inputs—returns, standard deviations, and correlations. These inputs are already difficult to estimate for traditional MVO, and the problem becomes substantially more difficult with more advanced techniques. The future is hard to predict accurately, especially in detail.

In our study, we explored one of the promising alternatives to MVO that incorporates non-normal return distributions: mean-conditional value at risk, or M-CVaR, optimization.

Modeling Non-Normal Returns

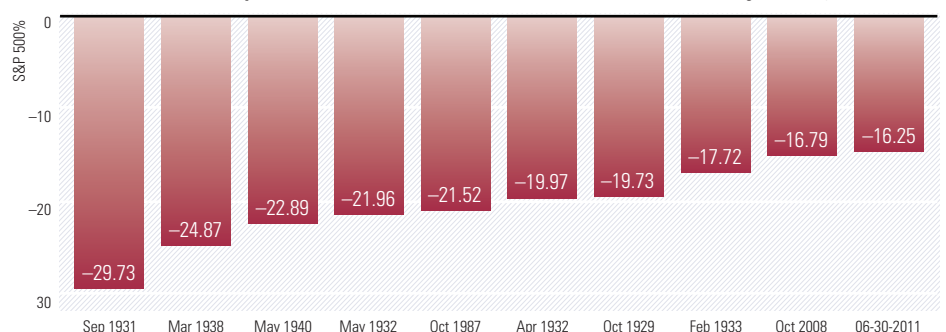
Empirically, almost all asset classes and portfolios have returns that are not normally distributed. Many asset return distributions are asymmetrical. In other words, the distribution is skewed to the left (or occasionally to the right) of the mean (expected) value. In addition, most asset return distributions are more leptokurtic, or fatter tailed, than are normal distributions.

The normal distribution assigns what most people would characterize as meaninglessly small probabilities to extreme events that empirically seem to occur approximately 10 times more often than the normal distribution predicts. For example, the probability of more than a three-standard-deviation loss according to a normal distribution is 0.13%, when in reality it is 1%. Since 1926, there have been 10 months in which the S&P has experienced a “three-sigma” event (see Exhibit 1).

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Exhibit 1: The Worst 10 Monthly Returns for the S&P 500 (from 01-1926 to 03-2010)

Three Sigma Event: $\mu - 3\sigma = -15.75\%$



Many statistical models have been put forth to account for fat tails. Well-known examples are the Levy stable hypothesis (Mandelbrot 1963), the Student's t-distribution (Blattberg and Gonedes 1974), and the mixture-of-Gaussian-distributions hypothesis (Clark 1973). The last two models possess finite variance (where the expected value is observable and measurable) and fat tails, but they are unstable, which implies that their shapes change at different time horizons (using weekly versus monthly returns, for example) and therefore do not obey scaling relations. (Scaling relations imply that one can model the return distribution of different time intervals with the same model parameters.)

Thus, our preferred method is based on an enhancement to the Levy stable distribution model (Levy 1925). In 1963, Benoit Mandelbrot modeled cotton prices with a Levy stable process, an approach that was later supported by Eugene Fama (1965). A Levy stable distribution model can have skewness and fat tails and obeys scaling properties. Unfortunately, the Levy stable distribution has infinite variance, which violates empirical observations and logic. Infinite variance significantly complicates the task of risk estimation and limits the practical application of the stable distribution. A simple enhancement that addresses this shortcoming of the Levy stable distribution is to truncate the extreme tails of the stable distribution, which results in the truncated Levy flight, or TLF, distribution (see Mantegna and Stanley 2000).

The TLF distribution is particularly well suited to financial modeling because it has four finite moments—mean, variance, skewness, and kurtosis—that empirically fit the data exceptionally well over short and very long time frames (at which point it converges to a normal distribution). And perhaps most important for financial modelers seeking an elegant modeling solution, it “scales” appropriately over time. James X. Xiong (2010) demonstrated that the

TLF model provides an excellent fit for a variety of asset classes exhibiting different means, range of returns, asymmetries (skewness), and thickness of the tails (kurtosis). (See Exhibit 2 and Exhibit 3.)

Furthermore, because we can specify different skewness and kurtosis parameters (in addition to mean and variance) for different asset classes, a multivariate version of the TLF model is ideal not only for simulating asset class returns but also for studying the impact of incorporating skewness and fat tails into the asset-allocation decision through controlled optimizations. Thus, in our controlled optimizations, we systematically varied the skewness and kurtosis of the various asset classes and generated asset class returns using a multivariate TLF model, which ultimately allowed us to estimate a portfolio's conditional value at risk, or CVaR.

Conditional Value at Risk

CVaR is related to the better-known measure, value at risk, or VaR, which estimates the loss that is expected to be exceeded with a given level of probability over a specified period. VaR is a statement about only one particular point on the distribution, whereas CVaR takes a probability-weighted average of the possible losses conditional on the loss being equal to or exceeding the specified VaR. Other terms for CVaR include mean shortfall, tail VaR, and expected tail loss. CVaR is a comprehensive measure of the entire part of the tail that is being observed and for many is the preferred measurement of downside risk. Studies have shown that CVaR has more attractive properties than VaR (see, e.g., Rockafellar and Uryasev 2000; Pflug 2000).

Besides providing a better measure of a distribution's tails, another desirable property

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Exhibit 2: TLF on the S&P 500

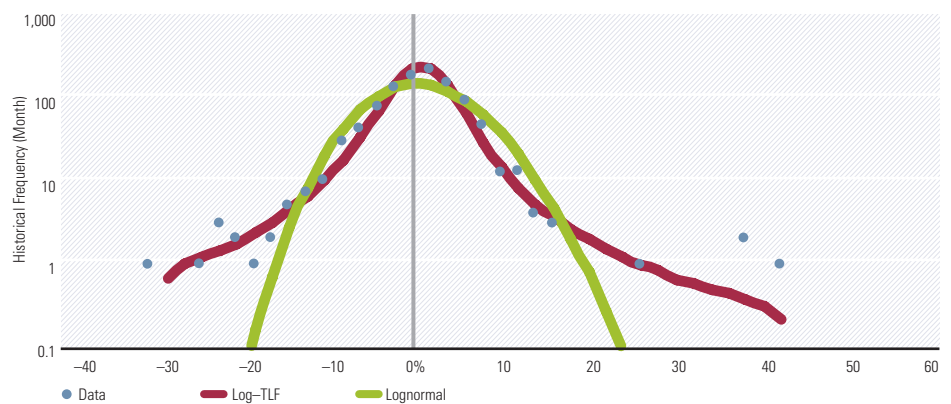
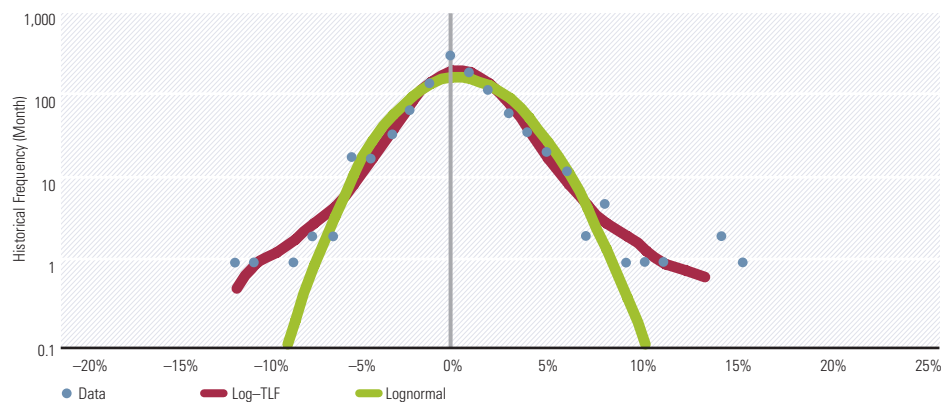


Exhibit 3: TLF on Long-Term U.S. Government Bonds



of CVaR is that it is subadditive. Artzner, Delbaen, Eber, and Heath (1999) demonstrated that one of the desirable characteristics of a “coherent measure of risk” is subadditivity—that is, the risk of a combination of investments is at most as large as the sum of the individual risks. VaR is not always subadditive, which means that the VaR of a portfolio with two instruments may be greater than the sum of the individual VaRs of those two instruments.

In the most basic case, if one assumes that returns are normally distributed, both VaR and CVaR can be estimated by using only the first two moments of the return distribution as follows in Equations 1 and 2 (see, e.g., Rockafellar and Uryasev 2000):

- 1) $VaR_p = \mu_p - 1.65\sigma_p$
- 2) $CVaR_p = \mu_p - 2.06\sigma_p$

where μ_p and σ_p are the mean and the standard deviation of the portfolio, respectively.

For our study, we fixed the probability level for the VaR and the CVaR at 5.0% (corresponding to a confidence level of 95%). For example, for a portfolio with $\mu_p = 10\%$ and $\sigma_p = 20\%$, the VaR and the CVaR of the portfolio are negative 23.0% and negative 31.2% of the portfolio’s starting value, respectively. To investors, this means the average loss is 31.2% when a loss exceeds the 23% threshold, which is the worst 5th percentile of the example normal return distribution.

Introducing skewness (or asymmetry) and kurtosis into a portfolio’s return distribution complicates the calculation of CVaR and brings us to Equation 3:

- 3) $CVaR_p = \mu_p - f(c,s,k) \sigma_p$

where $f(c,s,k)$ is a function of confidence level c , skewness s , and kurtosis k .¹

Unfortunately, the function $f(c,s,k)$ is complicated and generally has no closed-form solution. With Monte Carlo simulations based on the TLF distribution, however, we can model non-normal returns and ultimately estimate Equation 3.

M-CVaR Optimization

Traditional MVO leads to an efficient frontier that maximizes return per unit of variance or, equivalently, minimizes variance for a given level of return. Similarly, M-CVaR maximizes return for a given level of CVaR or, equivalently, minimizes CVaR for a given level of return.

The M-CVaR process that we used in our study takes non-normal return characteristics into consideration and, in general, prefers assets with positive skewness, small kurtosis, and low variance. If the returns of the asset classes are normally distributed or if the method used to estimate the CVaR considers only the first two moments, both MVO and M-CVaR optimization lead to the same efficient frontier and, thus, the same asset allocations. To understand the implications of skewness and kurtosis for portfolio selection, one must estimate CVaR in a manner that captures the important non-normal characteristics of the assets in the opportunity set and how those non-normal characteristics interact when combined into portfolios.

Armed with a measure of CVaR that accounts for skewness and kurtosis, we studied the impact of skewness and kurtosis on asset allocation in a series of five comparisons. Scenarios 1–4 involved four simple hypothetical examples, whereas Scenario 5 consisted of a real-world opportunity set of 14 asset classes. More specifically, in Scenario 1, we assumed normal returns and used a traditional quadratic optimization routine to determine the optimal portfolios. In Scenarios 2–4, we assumed non-normal return distributions and used simulation-based optimizations for both MVO and M-CVaR.² We simulated asset returns by

using multivariate TLF distribution models. Such models result in return distributions that incorporate variance, skewness, and kurtosis into the CVaR estimate. Finally, in Scenario 5, we applied MVO and M-CVaR optimizations to a typical portfolio of 14 asset classes by using a resampling or bootstrapping technique on modified historical returns.

Hypothetical Asset Classes

To more easily identify and isolate the impact of skewness and kurtosis on M-CVaR optimization, we ran a controlled experiment with a small asset universe. We assumed four simple hypothetical assets—Assets A, B, C, and D. The expected returns, standard deviations, and correlation matrix are shown in Table 1 (Panels A and B).

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Table 1: Capital Market Assumptions With Higher Moments

Panel A: Expected Returns and Standard Deviations				
	Expected Return %	Standard Deviation %		
Asset A	5	10		
Asset B	10	20		
Asset C	15	30		
Asset D	13	30		

Panel B: Correlation Matrix				
	A	B	C	D
Asset A	1			
Asset B	0.34	1		
Asset C	0.32	0.82	1	
Asset D	0.32	0.82	0.71	1

Panel C: Skewness and Kurtosis					
		Assets			
		A	B	C	D
Scenario 1	Skewness	0	0	0	0
	Kurtosis	3	3	3	3
Scenario 2	Skewness	0	0	0	0
	Kurtosis	3.5	3.5	6	3.5
Scenario 3	Skewness	0	0	-0.5	-0.3
	Kurtosis	6	6	6	6
Scenario 4	Skewness	0	0	-0.5	-0.3
	Kurtosis	3.5	3.5	6	3.5

¹ Hallerbach (2002) provided a formula for VaR for non-normal distributions, which can be straightforwardly extended to CVaR.
² Developed by Rockafellar and Uryasev (2000), the M-CVaR optimization algorithm that we used can be easily implemented with simulated stochastic returns.

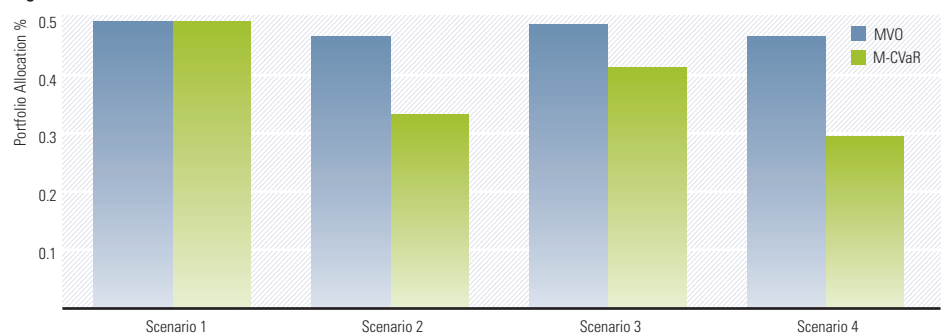
Panel C of Table 1 identifies the skewness and kurtosis assumptions for the four assets used in the first four scenarios. A normal distribution has zero skewness and a kurtosis of 3 (Scenario 1). A kurtosis greater than 3 indicates a fatter tail than that of the normal distribution (Scenarios 2–4). Assets A, B, and C have the same ratio of return/risk (standard deviation), 0.5. Asset D has a slightly lower return/risk ratio, 0.43. The correlation between Asset A and the other assets is “low,” whereas the correlations among Assets B, C, and D are “high.” One can think of Asset A as a bond index and Assets B, C, and D as equity indexes. Using the inputs from Table 1, we generated returns from the multivariate TLF model for the four assets and ran the MVO and M-CVaR optimizations.

We analyzed the asset allocations as we varied the skewness and kurtosis of the four assets. As can be seen in Panel C of Table 1, by varying the skewness and kurtosis of Asset C relative to the other assets, we were able to use Asset C as our primary “guinea pig.” We selected a skewness of negative 0.5 and a kurtosis of 6 (Panel C) in such a way that they are typical values for equity asset classes.³ Because MVO ignores higher moments, the optimal allocations are nearly the same for the four scenarios based on MVO.⁴ In contrast, one would expect the M-CVaR optimizations to lead to different allocations.

Summarizing Scenarios 1-4

Figure 1 summarizes the impact of skewness and kurtosis on the asset-allocation differences that result from MVO and M-CVaR optimization as measured by the allocation to Asset C, our guinea pig asset. Across all four scenarios, MVO led to similar asset allocations at each of the corresponding expected return points. (Any observed differences are due to sampling

Figure 1: Allocations to Asset C in the Efficient Frontier with Portfolio Return of 11% for the Four Scenarios



errors—that is, slight differences in the return vector, standard deviation vector, and correlation matrix for Scenarios 2–4.) In Scenario 1, all four asset classes exhibited zero skewness and uniform tails (no excess kurtosis), resulting in identical allocations between the MVO and M-CVaR optimizations. In contrast, when the M-CVaR optimization incorporated skewness and kurtosis into the asset-allocation decision in Scenarios 2–4, it produced different optimal mixes than the MVO optimization—the allocations to Asset C varied by as much as 20 percentage points. Scenario 2 suggests that kurtosis with mixed tails (where one asset had extremely fat tails) has a significant impact on allocation, even though the asset return distributions are symmetrical (no skewness). Scenario 3 implies that skewness has a significant impact when kurtosis is controlled. Scenario 4 shows that the combination of skewness and kurtosis with mixed tails has the largest impact on M-CVaR allocation.

These four scenarios provide useful insights. In an asset universe with mixed tails, information about skewness and kurtosis can significantly affect the optimal allocations in the M-CVaR optimization. In these cases, the portfolio’s CVaR, or expected tail loss, can be reduced by performing the M-CVaR optimization, but not by the MVO. The amount by which the portfolio’s CVaR was reduced

for the two optimizations depends on the distributions of skewness and kurtosis in the asset universe shown in Panel C of Table 1. In the M-CVaR optimization, wider ranges of skewness and kurtosis among the assets lead to a greater reduction in the portfolio’s CVaR.

Scenario 5: The 14 Asset Classes

In our final example, Scenario 5, we move away from our four hypothetical asset classes and apply MVO and M-CVaR to a robust 14-asset-class opportunity set that is typical for a sophisticated investor. In contrast to our previous four scenarios—in which we used the multivariate TLF distribution (parameterized on the basis of the capital market assumptions in Table 1) to estimate CVaR—in Scenario 5, we switched to a nonparametric bootstrapping analysis based on historical data. This approach allows other researchers to duplicate this portion of our analysis because few practitioners have a workable version of the multivariate TLF distribution.⁵

Rather than simply use pure historical returns, we used the reverse optimization procedure based on the capital asset pricing model—the starting point for the Black-Litterman model—to infer the expected future return for each asset class (shown in the second column of Table 2).⁶ The bootstrapping, or resampling,

CONTINUED ON NEXT PAGE

³ See Table 4.

⁴ The slight variations among the MVO results in Scenarios 2–4 arise from the simulation procedure. As the number of trials increases, the MVO results approach those from a non-simulation-based quadratic programming technique.

⁵ In practice, we believe that one should use expected returns coupled with expected standard deviations, correlations, skewness, and kurtosis to generate the multivariate TLF returns and then use simulation-based optimization to derive the MVO and M-CVaR efficient frontiers. Our simulation-based optimization results for multivariate TLF returns for the 14 asset classes are generally consistent with our bootstrapping results.

⁶ The excess return reverse optimization formula is $\mu = \lambda \Sigma w$, where λ is the risk aversion coefficient, Σ is the covariance matrix, and w is the capitalization weights.

method simultaneously accounts for input uncertainty and addresses the issues of estimation error, input sensitivity, and highly concentrated asset allocations.

To ensure diversification, we limited the maximum allocation for each asset class to 30% during each optimization. To mitigate the issue of “optionality” (the overweighting of

higher-volatility assets) associated with long-only constraints in resampling (see Scherer 2002), we allowed short sales and limited shorting to 30% for each asset class.

Figure 2 shows the skewness and kurtosis for the 14 asset classes over the past 20 years (1990–2010). Note that the relationship between skewness and kurtosis is somewhat

linear for all 14 asset classes. A higher kurtosis is often accompanied by more-extreme negative skewness. Also note that global high yield, U.S. REITs, and U.S. Treasury Inflation-Protected Securities, or TIPS, appear in the bottom right of Figure 2, which suggests that they have high kurtosis and more extreme negative skewness. From this perspective, these three assets have characteristics that are similar to those of Asset C in Scenario 4. Empirically, these assets seem to produce relatively stable returns during normal times, but they can suffer severely negative returns during extraordinary events.

Table 2: 14 Asset Classes—Expected Descriptive Statistics

	Capitalization Weights %	Expected Mean %	Sharpe Ratio	Expected CVaR %	CVaR Ratio
Large Value	8.70	8.94	0.36	-36.62	0.14
Large Growth	8.67	9.54	0.34	-41.29	0.14
Small Value	0.83	9.12	0.32	-43.66	0.12
Small Growth	0.76	10.71	0.31	-51.23	0.14
Non-U.S. Dev. Equity	16.01	10.53	0.4	-39.50	0.18
Emerging Market	4.82	11.88	0.35	-56.30	0.15
Commodity	5.80	6.33	0.16	-35.16	0.07
Non-U.S. Real Estate	7.98	11.31	0.38	-45.41	0.17
U.S. Real Estates	3.51	9.24	0.27	-50.97	0.11
U.S. TIPS	0.84	4.78	0.15	-12.64	0.06
U.S. Bonds	23.12	4.49	0.13	-7.49	0.07
Non-U.S. Gov. Bonds	16.04	5.51	0.18	-16.44	0.1
Global High Yield	1.92	7.10	0.31	-28.07	0.12
Cash	0.98	4.00	N/A	0.10	N/A

Figure 2: Skewness and Kurtosis for the 14 Asset Classes (from February 1990 to May 2010)

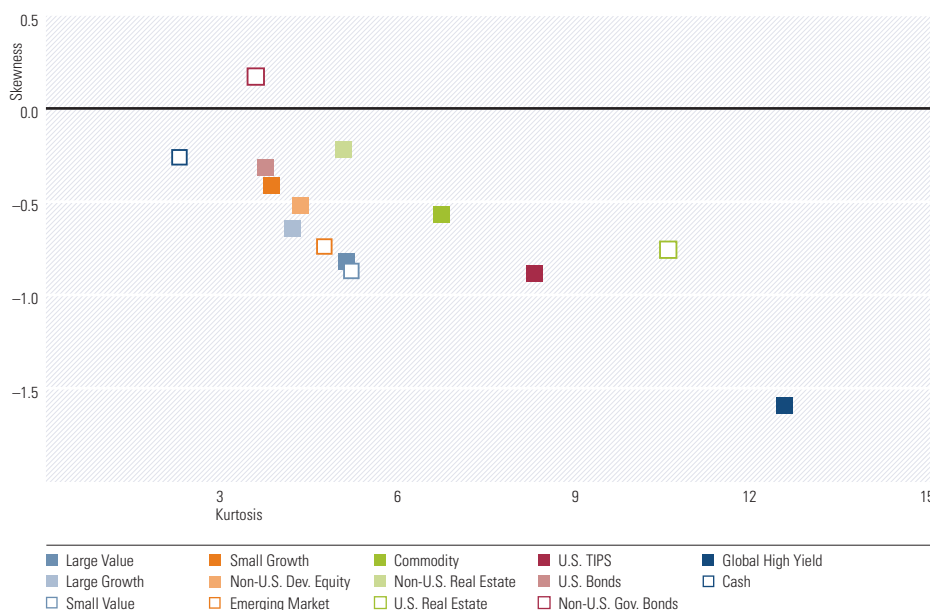


Table 3 shows the optimal asset allocations for both the MVO and the M-CVaR optimization from the bootstrapping of the 14 asset classes. Compared with the MVO, the M-CVaR optimization monotonically underweights global high yield, U.S. REITs, and commodities because of their more-extreme negative skewness and higher kurtosis, and it overweights non-U.S. government bonds, U.S. nominal bonds, and non-U.S. REITs because of their more-attractive combined skewness and kurtosis. Small growth receives higher weightings in the M-CVaR optimization, owing to its attractive upper-left position in Figure 2 (higher skewness and lower kurtosis), even though the weightings are negative (short sales) for asset mix 1 (expected return of 7%) and asset mix 2 (expected return of 9%). Non-U.S. developed equities historically exhibit similar return, standard deviation, skewness, and kurtosis as small growth, as shown in Table 4; it is located below and to the right of small growth in Figure 2 and thus receives less weighting in the M-CVaR than in the MVO.

At the portfolio level, the skewness is higher, the kurtosis is lower, and the CVaR is lower for the M-CVaR optimization. For example, as shown in the bottom of Table 3 for asset mix 4 (expected return of 13%), the expected volatility is increased by a 0.7 percentage point. But the skewness is increased from negative

Table 3: Bootstrapped Optimal Allocations and Statistics for the 14 Asset Classes

Asset Mix E(R)	1 7%		2 9%		3 11%		4 13%	
	MVO %	M-CVaR %	MVO %	M-CVaR %	MVO %	M-CVaR %	MVO %	M-CVaR %
Large Value	1.13	0.59	3.52	2.15	5.79	3.80	8.88	6.87
Large Growth	3.29	4.63	3.79	4.52	4.93	5.70	7.67	8.04
Small Value	7.54	8.51	5.48	6.03	4.52	4.77	5.28	5.79
Small Growth	-2.35	-1.37	-1.36	-0.04	0.08	1.74	1.91	4.01
Non-U.S. Dev. Equity	2.82	-0.45	5.25	2.47	8.54	7.08	12.05	11.36
Emerging Market	1.31	1.53	1.56	1.18	2.94	2.35	5.48	4.94
Commodity	3.62	1.12	4.03	1.38	4.71	2.17	4.85	2.59
Non-U.S. Real Estate	-2.83	-2.55	0.01	2.33	3.49	6.19	7.75	10.70
U.S. Real Estates	-2.55	-4.36	-0.74	-3.42	1.75	-1.69	4.73	0.98
U.S. TIPS	15.55	15.17	13.46	15.51	11.89	14.42	8.10	10.33
U.S. Bonds	28.18	28.30	22.91	24.11	17.35	20.26	11.16	14.46
Non-U.S. Gov. Bonds	9.27	15.62	9.01	14.10	8.82	12.27	8.08	11.02
Global High Yield	5.01	3.29	5.22	2.26	5.01	1.53	4.86	0.72
Cash	30.00	29.97	27.84	27.40	20.19	19.40	9.19	8.19
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Standard Deviation	4.00	4.60	6.00	6.70	8.50	9.20	10.80	11.50
Skewness	-0.4	0.3	-0.3	0.3	-0.3	0.1	-0.4	0
Kurtosis	5	3.7	4.9	3.9	5	4.2	5.1	4.3
VaR	-4.80	-4.70	-7.60	-7.50	-11.40	-11.10	-14.80	-14.70
CVaR	-7.30	-6.00	-11.40	-9.80	-16.90	-15.10	-22.10	-20.40

Table 4: 14 Asset Classes—Historical Descriptive Statistics (from February 1990 to May 2010)

	Mean %	Std. Dev. %	Skewness	Kurtosis	Sharpe Ratio	CVaR %	CVaR Ratio
Large Value	10.24	14.70	-0.82	5.06	0.44	-36.37	0.18
Large Growth	9.34	17.40	-0.64	4.19	0.32	-41.46	0.13
Small Value	12.62	17.07	-0.86	5.16	0.51	-42.84	0.2
Small Growth	9.47	23.23	-0.41	3.84	0.24	-51.71	0.11
Non-U.S. Dev. Equity	5.85	17.45	-0.52	4.29	0.11	-40.90	0.05
Emerging Market	13.29	24.26	-0.74	4.72	0.39	-56.11	0.17
Commodity	7.13	15.58	-0.57	6.67	0.21	-35.00	0.09
Non-U.S. Real Estate	8.05	20.66	-0.22	5.03	0.2	-46.44	0.09
U.S. Real Estates	15.31	20.36	-0.76	10.51	0.56	-49.50	0.23
U.S. TIPS	8.19	5.54	-0.89	8.27	0.78	-11.74	0.37
U.S. Bonds	7.22	3.82	-0.31	3.72	0.89	-6.77	0.5
Non-U.S. Gov. Bonds	7.67	8.76	0.17	3.54	0.44	-15.89	0.24
Global High Yield	10.89	10.59	-1.6	12.5	0.67	-27.13	0.26
Cash	3.85	0.57	-0.26	2.26	N/A	0.03	N/A

0.4 to 0, the kurtosis is lowered by 0.8, and the CVaR is lowered by 1.7 percentage points, even while maintaining allocations to asset classes with negative skewness and high kurtosis.

A portfolio's skewness or kurtosis is not simply the linear combination of individual asset classes' skewness or kurtosis. Because the M-CVaR minimizes a portfolio's CVaR, or tail loss, an individual asset class' higher-moment information should not be considered entirely separately. This point reinforces the most important lesson of Modern Portfolio Theory: Although individual asset class characteristics are important, what really matters is the portfolio's overall characteristics.

M-CVaR vs. MVO in the Financial Crisis of 2008

To test whether the M-CVaR optimization, compared with the MVO, would have helped investors during the financial crisis of 2008, we ran an out-of-sample bootstrapping analysis performed in August 2008, right before the onset of the most dramatic part of the financial crisis.⁷ The historical skewness and kurtosis from February 1990 to August 2008 are shown in the second and third columns of Table 5. Note that absent the data from September 2008 on, the values for skewness are higher and the values for kurtosis are lower for most equity classes, REITs, and commodities. In other words, the 2008 crisis significantly shifted their left tails further to the left. In particular, commodities were positively skewed before the crisis but were significantly negative after the crisis. In sharp contrast, the crisis made the skewness of U.S. bonds less negative, which suggests that the crisis triggered the flight to safety.

The differences in average allocations between the M-CVaR and the MVO for the four asset mixes are shown in Table 5 (from column 5 to the last column). (A negative sign means

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⁷ A thorough out-of-sample test for both crisis and noncrisis periods was beyond the scope of our study. It would also require a long history of data because the tail information must be estimated.

Table 5: Out-of-Sample Test for M-CVaR and MVO in Financial Crisis of 2005

	Skewness*	Kurtosis*	Loss in Crisis %	AM1** %	AM2** %	AM3** %	AM4** %
Large Value	-0.53	4.48	-39.98	0.68	-0.32	-1.06	-1.19
Large Growth	-0.52	4.17	-34.54	1.63	1.64	1.06	0.02
Small Value	-0.74	4.56	-42.47	0.08	1.30	1.41	0.73
Small Growth	-0.32	3.91	-41.91	-0.33	0.09	0.97	1.91
Non-U.S. Dev. Equity	-0.29	3.44	-41.26	-2.44	-1.83	-0.52	0.46
Emerging Market	-0.7	4.45	-39.62	-0.63	-1.99	-2.87	-2.40
Commodity	0.13	3.58	-48.47	-0.17	0.08	0.64	0.99
Non-U.S. Real Estate	0.01	4.5	-46.27	1.14	2.53	3.25	2.93
U.S. Real Estates	-0.3	3.81	-58.39	-0.90	-2.52	-2.91	-2.88
U.S. TIPS	-0.33	4.67	-2.06	1.53	4.14	3.77	3.48
U.S. Nominal Bonds	-0.38	3.67	3.29	-1.71	-0.96	-0.13	-0.19
Non-U.S. Gov. Bonds	0.18	3.56	0.87	3.95	2.44	1.92	1.79
Global High Yield	-1.22	10.36	-20.76	-2.72	-3.68	-4.46	-4.53
Cash	-0.2	2.45	0.44	-0.12	-0.91	-1.06	-1.12
M-CVaR return less MVO return				1.11	1.44	1.15	0.84

* Skewness and kurtosis are measured from February 1990 to August 2008.
** Columns AM1 to AM4 show the optimal allocation differences between M-CVaR and MVO for each asset class for the four asset mixes.

that the asset class has a lower weighting based on the M-CVaR optimization.) Overall, the allocation differences shown in Table 5 are similar to those shown in Table 3, except for U.S. bonds and commodities. The opposite changes in skewness for U.S. bonds and commodities owing to the crisis, however, resulted in higher allocations to commodities and lower allocations to U.S. bonds for the M-CVaR optimization in Table 5 compared with that in Table 3. Even so, the M-CVaR outperformed the MVO in all four asset-allocation mixes, with excess returns ranging from 0.84 percentage points to 1.44 percentage points, as the majority of these allocation differences turn out to be effective.

Conclusion

Although practitioners are well aware that asset returns are not normally distributed and that investor preferences often go beyond mean and variance, the implications for portfolio choice are not well-known. In a series of controlled traditional MVOs and M-CVaR optimizations, we gained insights into the

ramifications of skewness and kurtosis for optimal asset allocations. M-CVaR prefers assets with higher positive skewness, lower kurtosis, and lower variance. Although we are just beginning to understand the impact of higher moments on asset-allocation policy and further study is needed, these optimizations drive home a critical implication of Modern Portfolio Theory: What matters is the overall impact on the portfolio's characteristics. ■■

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Morningstar Product Spotlight: Finding Alternative Investments in Morningstar DirectSM

Advancing the search for alternatives.



by
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Most Morningstar DirectSM users are familiar with the software's ability to pull products based upon legal structure and region available for sale—the standard modus operandi for investment databases. While smaller investors are usually limited to particular products such as mutual funds and exchange-traded funds, larger investors are often flexible in their product choice, perhaps open to a hedge fund or separately managed account structure. For institutional investors, selecting the best manager for a particular investment mandate is frequently more important than how the investment is structured.

In an effort to continuously improve institutional investors' experiences, Morningstar Direct has recently added an "Advanced Search" functionality, allowing users to search across "All Managed Investments"—the widest available search within Morningstar Direct. (See Exhibit 1). Investors can now reverse the traditional search routine, first seeking specific investment attributes and then

selecting a particular vehicle or product (although some data points or attributes remain unique to each product silo). The Advanced Search function still requires some tweaks, but it goes a long way in improving the investment-allocation process, particularly with alternative investments.

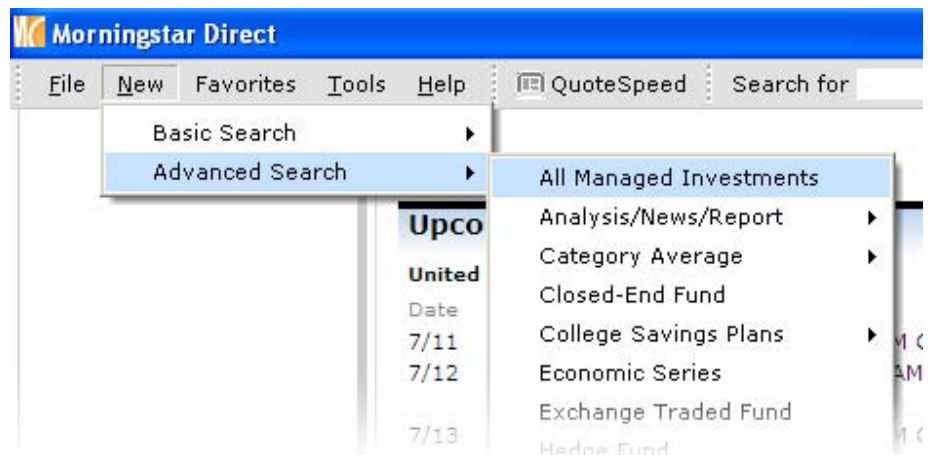
Category Groups

One way to search for an investment attribute, or a collection of investment attributes, is by category. Many Morningstar users are familiar with the Morningstar Category methodology used to classify and rate funds. Unfortunately, the categories are not yet standardized across product databases within Morningstar Direct because of investors' different needs in different regions.

But for alternative investments, several new categories were recently launched, and some of the existing categories were renamed (as of April 30, 2011) in an effort to link the same or similar categories across investment vehicle and geography. Not all investment categories will exist in every product market (for example, several regional long/short equity categories exist in the European mutual fund and hedge fund databases, but not in the U.S. mutual fund, exchange-traded fund, and separate account silos) because there are not yet enough investment options. The new alternative-investment category schema, however, is designed to allow for all categories in all markets if and when enough products are available to investors.

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Exhibit 1: Advanced Search Screenshot



In Morningstar Direct, there are additional levels of categorization—termed institutional category, broad category, or global category—that can help link similar alternative investments, even if the standard Morningstar category names differ. Institutional categories allow for more narrowly defined peer groups than the standard Morningstar category, while global categories align groups of categories together, and the broad categories group funds by asset class. Most products using alternative strategies can be found in the alternative broad category group. For users with a wider definition of alternative investments, Morningstar maintains a “property” broad category group, as well as a “commodity” broad category group for long-only commodity investments. There are seven global categories feeding into the alternatives broad category group, including bear market, capital protected, currency, guaranteed, hedge fund, other alternative, and global market-neutral. The broad category groups and global categories are still evolving and improving for alternatives, so using Morningstar categories is still the most effective approach to finding alternatives within Morningstar Direct.

Category Alignment

Although the new and renamed alternative categories may outwardly appear unique to a particular geographic area, they are quite easily mapped together and therefore are useful for alternative-investment searches across investment structure and geography. Table 1 demonstrates the mapping of long-short equity funds across our open-end (mutual fund) and hedge fund databases. The U.S. open-end database houses a much smaller spectrum of long-short equity strategies and therefore is assigned only one Morningstar category. But there are significantly more investment options in European open-end funds and hedge funds and therefore more category choices. This paradigm is followed for other

Table 1: Long-Short Equity Category Mapping

U.S. Open End	Europe/Asia Open End	Hedge Funds
Long/Short Equity	Alt-Long/Short Equity— Emerging Markets	Emerging Markets Long/Short Equity
	Alt-Long/Short Equity—Europe Alt-Long/Short Equity—U.K.	Europe Long/Short Equity
	Alt-Long/Short Equity—Global	Global Long/Short Equity Asia/Pacific Long/Short Equity
	Alt-Long/Short Equity—U.S.	U.S. Long/Short Equity U.S. Small Cap Long/Short Equity

Table 2: Multialternative Category Mapping

U.S. Open End	Europe/Asia Open End	Hedge Funds
Multialternative	Alt-Long/Short Debt	Long/Short Debt
	Alt-Fund of Funds—Equity	Fund of Funds—Equity
	Alt-Fund of Funds—Multistrategy	Fund of Funds—Multistrategy
	Alt-Fund of Funds—Other	Fund of Funds—Macro/Systematic Fund of Funds—Event Fund of Funds—Debt Fund of Funds—Relative Value
	Alt-Multistrategy	Multistrategy
	Alt-Global Macro	Global Macro

Table 3: Market-Neutral Category Mapping

U.S. Open End	Europe/Asia Open End	Hedge Funds
Market Neutral	Alt-Debt Arbitrage	Debt Arbitrage
	Alt-Diversified Arbitrage	Diversified Arbitrage Merger Arbitrage
	Alt-Market Neutral—Equity	Equity Market Neutral

Table 4: Other Alternative Categories

U.S. Open End	Europe/Asia Open End	Hedge Funds
Currency	Alt-Currency	Currency
Managed Futures	Alt-Systematic Futures	Systematic Futures
Bear Market	(Insufficient funds)	Bear Market Equity
Volatility*	Alt-Volatility	Volatility
Trading Inverse Equity* Trading-Leveraged Equity*	Trading Leveraged/Inverse Equity*	(Not Applicable)
Trading-Inverse Debt* Trading-Leveraged Debt*	Trading Leveraged/ Inverse Fixed Income*	(Not Applicable)
Trading-Inverse Commodities Trading-Leveraged Commodities* Trading-Miscellaneous*	Trading Leveraged/Inverse Other*	(Not Applicable)
(Insufficient funds)	Alt-Event Driven	Event Driven
(Not Applicable)	(Not Applicable)	Distressed Securities

*Currently, only ETFs are eligible for these categories.

alternative-strategy categories as well. (See Tables 2–4.) A few alternative strategies, such as distressed debt, are currently found only in hedge funds, while leveraged and inverse index products are primarily structured as ETFs. (See Table 4.)

Searching for Investment Options

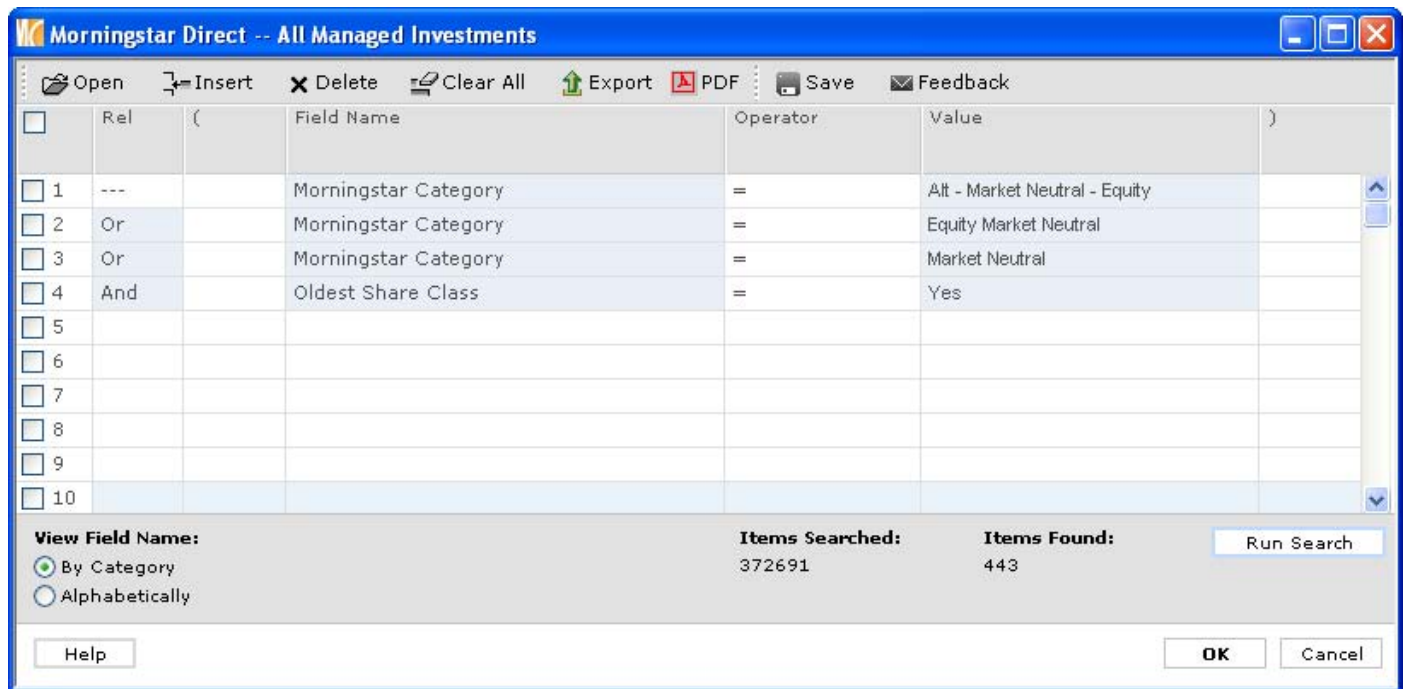
The Advanced Search ► All Managed Investments dialogue in Morningstar Direct lets investors search for all products under the aforementioned alternative categories. The first step is to add each category as search criteria with “or” as the relationship for the search.

Categories within Morningstar Direct are listed by region, so be sure to include all local regions in the search. Exhibit 2 below is an example of an advanced search for distinct (oldest share class) equity market-neutral funds in the Europe, the United States, and global hedge fund categories. The Europe and U.S. categories include mutual funds, ETFs, separate accounts, and variable-annuity subaccounts. This particular advanced search identified 443 equity market-neutral products across databases. After applying this search, save the results as an investment list, and use any preferred data points to identify the best manager for the mandate at hand.

Conclusion

The new Advanced Search function within Morningstar Direct allows investors to better address alternative-investment mandates by fostering searches across investment structure and region. With the ongoing convergence of alternative strategies in hedge funds, mutual funds, and separate accounts, investors are more interested in finding managers and strategies rather than structures. Morningstar Direct is working to make the search experience easier and faster. ■■

Exhibit 2: Equity Market-Neutral Search



Industry Trends: Alternative Mutual Funds

The trend toward convergence is here to stay.



by
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Alternative Investments
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Alternative Mutual Funds

Hedge fund managers continue to ride into the mutual fund frontier, and the easiest way to get there appears to be through funds of funds. Twelve new alternative mutual funds were launched in the second quarter, and four of them are structured as mutual funds of hedge funds managers. Palmer Square Absolute Return **PSQAX**, run by husband and wife team Chris and Angie Long, is the most recent mutual fund of hedge fund managers to launch. Hatteras Funds, a well-known hedge fund of funds complex, recently launched two single-strategy mutual funds of hedge fund managers, the Hatteras Long/Short Debt **HFIAX** and the Hatteras Long/Short Equity **HLSAX**. Orinda Asset Management launched a similar fund in March, the Orinda Multi-Manager Hedged Equity **OHEAX**. Many investors are wondering if this trend of “convergence” between mutual fund and hedge fund vehicles is a fad or if it’s here to stay. All signs are pointing to a permanent settlement in the retail-investing landscape.

First, for many money managers, the numbers now favor mutual fund structures over hedge funds. It used to be much easier, faster, and cheaper to set up and operate an unregistered investment advisor and hedge fund limited partnership as opposed to an SEC-regulated investment advisor and a mutual fund trust. Today, turnkey mutual fund service providers such as Premier Fund Solutions advertise initial startup costs as low as \$25,000. Hedge funds participating in mutual funds of funds can take an even cheaper route, needing to set up only a separately managed account.

In addition to lower barriers to entry for mutual funds, the profit margins on hedge funds are not as compelling as they once were. According to the Morningstar® 1000 Hedge Fund IndexSM, the average hedge fund only recovered from its financial-crisis losses at the end of 2010, which precluded its ability to charge a 20% performance fee for several quarters. Moreover, throughout 2009 and most of 2010, hedge funds in Morningstar’s database experienced significant redemptions. A 2% management fee on a much smaller asset base no longer covers costs for many hedge funds.

Finally, asset gathering is becoming increasingly difficult for hedge funds, especially the smaller firms. According to the *2011 Preqin Global Hedge Funds Investor Report*, most hedge fund capital comes from institutions, which now have hefty minimum assets-under-management

requirements (\$320 million on average). Furthermore, according to this same study, liquidity and transparency are now key attributes sought by hedge fund investors, and there is an increasing tendency toward regulated UCITS structures (in Europe) or separately managed accounts by these investors. Additionally, 40% of the study’s hedge fund manager respondents reduced fees per the demands of their institutional investors. Even though mutual funds cannot charge performance fees, the ability to charge similar management fees on a substantially larger and more-diverse investor base (90 million individual investors owned mutual funds in 2010 according to the ICI) is appealing to many fund managers.

So, the questions remain, is there really a demand for alternative mutual funds, and is it sustainable? The answer is yes to both. Year-to-date flows into Morningstar’s six new alternative mutual fund categories, which temporarily do not include long-short debt funds, are substantial, totaling \$5.8 billion through May. Flows into the dozen or so long-short debt funds exceed even this amount, as investors seek to manage the duration and credit risks of their long-only bond investments. As more and more advisors become fee-based fiduciaries, the importance of alternative investments to manage risk will only increase. And the lines between hedge funds and mutual funds will continue to blur. ■■■

Fund Reports

361° Absolute Alpha Fund

by **Mallory Horejs**

Advisor

361° Capital LLC

Advisor Location

Denver, Colorado

Assets Under Management

\$21.9 million (fund)

Inception Date

Dec. 31, 2010

Investment Type

Mutual fund

Morningstar Category

Market-neutral

Management

This fund is advised by 361° Capital. Brian Cunningham and Tom Florence co-founded the firm in 2001 and serve on the advisor's investment committee. The investment committee has two additional members--Blaine Rollins, managing director and senior portfolio manager, and Jeremy Frank, portfolio manager and head of quantitative analysis. 361° Capital launched its first hedge fund of funds more than a decade ago and currently offers an exchange-traded fund alternative-strategies portfolio, as well.

Strategy

This multimanager fund combines positions in long-biased equity managers with internally managed ETF strategies and hedges out most market risk at the portfolio level. The fund invests in approximately 10-15 underlying equity managers and employs a dynamic asset allocation. 361° Capital will consider any style of equity manager for the portfolio as long as the manager consistently generates positive risk-adjusted performance. The firm prefers equity managers with expertise in individual security analysis and who operate in less-efficient markets, such as micro-cap, small-cap, mid-cap, and international markets. As of June 30, the fund held approximately 350 long positions, a few options positions, and six short ETFs. Management hedges out market risk using ETFs and futures contracts, attempting to match the risks at the individual security level. Management targets returns of Treasuries plus 6% to 7% annually, with a standard deviation of 4% to 6%. The fund is intended to exhibit both a low beta (plus/minus 0.20) and low correlation to equities. The fund has exhibited a beta since inception (using weekly data through June 25) of 0.10. In its first six months of operation, the fund has generated a return of 1.1%, slightly less than the average market-neutral mutual fund.

Process

Management will introduce a new manager or strategy as long as the addition provides a diversification benefit and enhances the overall risk/return profile of the portfolio. Potential strategies are evaluated based on both quantitative factors, such as correlation to the existing portfolio and historical risk-adjusted performance, as well as qualitative factors, such as investment philosophy and firm personnel. The firm strives to find managers whose specific risk exposures can offset one another. After the selection process is complete, management determines individual strategy allocations based on expected performance over the next six to 12 months. An internal model attempts to forecast future alpha based on inflection points in a manager's historical alpha generation. Management anticipates very little subadvisor turnover in the portfolio but will make short-term allocation adjustments based on the model's alpha expectations. As of June 30, the fund employed nine external and two internal strategies, a broad-market hedging strategy, and an opportunistic strategy. 361° Capital's two internal strategies help adjust the fund's risk exposures.

Risk Management

361° Capital employs primarily subadvised separate accounts and model-portfolio structures (in which management executes trades submitted by the subadvisor), although the fund has held other mutual funds. The separate account and model portfolio structures allow full transparency into the underlying positions of each subadvisor. Transparency helps management hedge the underlying managers' style and market-capitalization risk factors. 361° Capital only hedges out sector risk on an opportunistic basis. Both the fund's broad-market and opportunistic hedging are done through the two internal strategies. The broad-market hedging basket strategically neutralizes the outside managers' long stock positions with short ETF positions, bringing equity exposure down to between roughly 3% and 8% of assets. The opportunistic basket is a quantitative strategy using equity index futures contracts that tactically adjust the net long/short equity exposure between plus/minus 20%. ■■■

361° Absolute Alpha A (USD)

Standard Index
S&P 500 TR

Category Index
BofAML USD
LIBOR 3 Mon CM

Morningstar Cat
US OE Market Neutral

Performance 05-31-2011					
Quarterly Returns	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total %
2009	—	—	—	—	—
2010	—	—	—	—	—
2011	1.10	—	—	—	0.90
Trailing Returns					
	1 Yr	3 Yr	5 Yr	10 Yr	Incept
Load-adj Mthly	—	—	—	—	-4.90
Std 03-31-2011	—	—	—	—	-4.71
Total Return	—	—	—	—	0.90
+/- Std Index	—	—	—	—	—
+/- Cat Index	—	—	—	—	—
% Rank Cat					
No. in Cat	—	—	—	—	—
7-day Yield	—	—	—	—	—

Performance Disclosure

The Overall Morningstar Rating is based on risk-adjusted returns, derived from a weighted average of the three-, five-, and 10-year (if applicable) Morningstar metrics.

The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost.

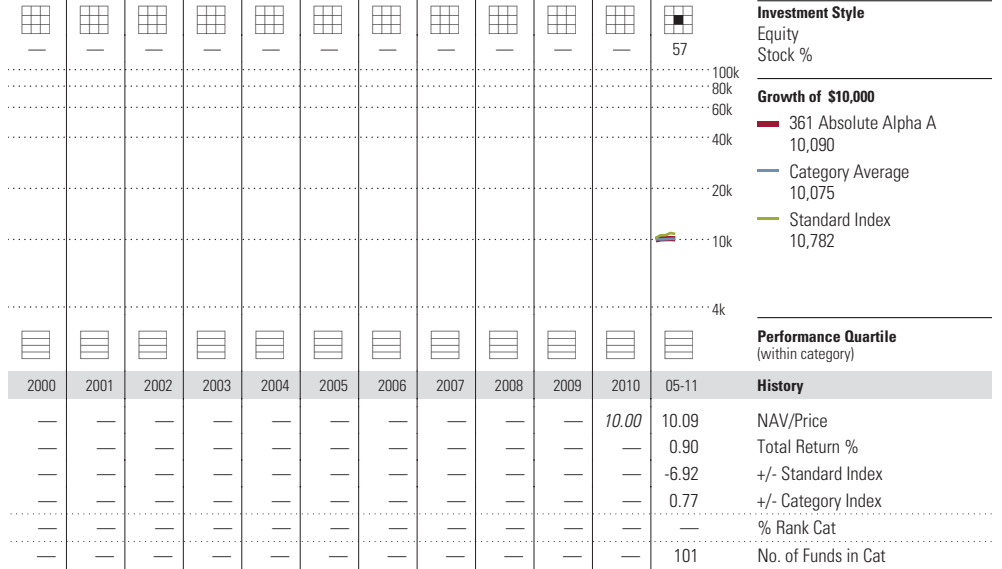
Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please call 888-736-1227.

Fees and Expenses

Sales Charges	
Front-End Load %	5.75
Deferred Load %	NA
Fund Expenses	
Management Fees %	1.60
12b1 Expense %	0.25
Gross Expense Ratio %	3.13

Risk and Return Profile

	3 Yr	5 Yr	10 Yr
Morningstar Rating™	—	—	—
Morningstar Risk	—	—	—
Morningstar Return	—	—	—
MPT Statistics			
	Standard Index	Best Fit Index	
Alpha	—	—	—
Beta	—	—	—
R-Squared	—	—	—
12-Month Yield	—	—	—
30-day SEC Yield	—	—	—
Potential Cap Gains Exp	—	—	—



Portfolio Analysis 01-31-2011

Asset Allocation %	Net %	Long %	Short %	Share Chg since	Share Amount	Holdings:	% Net Assets
Cash	28.25	31.49	3.24	—	—	4,225 Total Stocks, 882 Total Fixed-Income, — Turnover Ratio	
US Stocks	37.47	46.19	8.72	—	—		
Non-US Stocks	16.62	19.57	2.95	☼	4 mil	Fidelity Instl MM Fds Money Market	25.51
Bonds	7.73	7.99	0.27	☼	163,221	Tweedy,Browne Worldwide Hi Div Yld	10.14
Other/Not Clsfd	9.94	10.25	0.31	☼	112,208	AQR Diversified Arbitrage I	8.48
Total	100.00	115.49	15.49	☼	6,105	PIMCO Enhanced Short Maturity Strg	4.14
				☼	6,725	iShares MSCI South Korea Index	2.78
				☼	35,135	iShares MSCI Japan Index	2.58
				☼	3,620	iShares Russell 1000 Value Index	1.61
				☼	2,600	iShares iBoxx \$ High Yield Corpora	1.61
				☼	8,121	Guggenheim China All-Cap	1.49
				☼	10,599	iShares MSCI Hong Kong Index	1.37
				☼	2,539	iShares Russell 1000 Growth Index	1.00
				☼	8,912	iShares MSCI Taiwan Index	0.93
				☼	1,544	Vanguard Small Cap ETF	0.76
				☼	3,752	Guggenheim China Small Cap	0.74
				☼	20,000	Tennessee Commerce Bancorp, Inc.	0.67

Equity Style	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
P/E Ratio TTM	16.0	1.03	1.03	
P/C Ratio TTM	8.7	0.90	0.96	
P/B Ratio TTM	1.8	0.81	0.86	
Geo Avg Mkt Cap \$mil	6193	0.12	0.46	

Fixed-Income Style	Ltd	Mod	Ext	High	Med	Low
Avg Eff Duration						
Avg Eff Maturity						
Avg Credit Quality						
Avg Wtd Coupon						4.77
Avg Wtd Price						104.56

Credit Quality Breakdown	Stock %	Bond %
AAA	—	—
AA	—	—
A	—	—
BBB	—	—
BB	—	—
B	—	—
Below B	—	—
NR/NA	—	—

Regional Exposure	Stock %	Rel Std Index
Americas	72.8	0.73
Greater Europe	8.4	97.87
Greater Asia	18.8	—

Sector Weightings	Stocks %	Rel Std Index
Cyclical	43.9	1.57
Basic Materials	5.9	2.09
Consumer Cyclical	12.4	1.31
Financial Services	22.3	1.59
Real Estate	3.4	2.01
Sensitive	37.8	0.82
Communication Services	3.7	0.86
Energy	7.5	0.60
Industrials	14.1	1.11
Technology	12.5	0.76
Defensive	18.3	0.70
Consumer Defensive	7.2	0.64
Healthcare	7.6	0.66
Utilities	3.5	1.07

Operations

Family:	361 Funds	Base Currency:	USD	Purchase Constraints:	—
Manager:	Multiple	Ticker:	AAFAX	Incept:	12-31-2010
Tenure:	0.5 Year	Minimum Initial Purchase:	\$10,000	Type:	MF
Objective:	Growth	Minimum IRA Purchase:	\$10,000	Total Assets:	\$21.88 mil

Fund Reports

S1 Fund

by **Mallory Horejs**

Advisor

Simple Alternatives, LLC

Advisor Location

Ridgefield, Connecticut

Assets Under Management

\$31.9 million (fund)

Inception Date

Sept. 30, 2010

Investment Type

Mutual fund

Morningstar Category

Multialternative

Management

Simple Alternatives was founded in October 2009 by Jim Dilworth, Josh Kernan, and Bruce MacDonald. Dilworth has worked with institutional fund of fund firms for the past 16 years sourcing hedge fund managers. Kernan is a veteran of Charles Schwab, where he founded the firm's alternative investment business in 1996. MacDonald brings 16 years of asset-allocation experience from firms such as Putnam and the University of Virginia Asset Management Company. Dilworth and MacDonald manage the investment portfolio, and Kernan oversees sales, marketing, and client activities.

Strategy

The S1 fund attempts to provide a diversified portfolio of alternatives by investing in approximately six to 12 hedge fund managers. As of May 31, the fund maintained allocations to eight subadvisors, which are equally weighted by risk and rebalanced as weights move outside of predetermined ranges. Each subadvisor manages a slightly different strategy, but the majority of the portfolio is composed of long/short equity strategies. The addition of some global macro, special situations, and opportunistic trading strategies helps to diversify and lower the risk of the long/short equity managers. Management prefers smaller, fundamentally oriented subadvisors with between \$100 million to \$1 billion in assets, as the firm believes these managers will outperform larger or quantitatively focused asset managers over time. The smallest subadvisor, Blue Lion Capital Management, manages just \$60 million. The portfolio does include two larger managers, however: Argonaut Management and Cramer Rosenthal McGlynn. The S1 fund seeks to achieve returns of 8% to 12% annually with a standard deviation of 6% or less. The fund's beta since inception is 0.16 (using weekly data through June 25, 2011), slightly below management's long-term target of 0.25.

Process

The manager selection process consists of four stages: identification, filtering, evaluation, and approval. In the identification phase, management narrows the hedge fund manager universe to 160 potential subadvisors with fundamental security selection techniques, short-selling skill, and strategies that are conducive to a mutual fund structure (minimal leverage; investments in liquid, exchange-traded securities; and straightforward investment strategies). Most prospects come from referrals, but the firm utilizes external sources such as databases, consultants, and prime brokers. Next, management applies a quantitative filter to narrow the choices down to 40 managers. The selection metrics include: Sharpe ratio; alpha, beta, and correlation to various indexes; and maximum drawdown and time to recovery. Simple Alternatives believes that a manager's ability to preserve capital is key. During the third stage (evaluation), Simple Alternatives reaches out to the remaining prospects through phone calls and on-site visits to get a better sense of each potential subadvisor's organization and culture. Management will also consider how the prospect's strategy fits into the existing portfolio. At the final approval stage, managers are evaluated by the investment committee and, if unanimously accepted, are presented to the S1 Fund's board for approval.

Risk Management

The fund is structured as several separately managed accounts, allowing Simple Alternatives to aggregate the fund's positions daily across subadvisors and monitor risk exposures. Management hedges at the portfolio level to adjust the fund's exposure to particular issuers, sectors, or industries, as well as to general market or interest-rate risk. Net stock exposure will typically range from 20% to 40%, and net exposures to particular sectors are capped at 20%. The investment committee meets weekly to monitor these exposures as well as to discuss the overall portfolio construction. Performance expectations are established for each subadvisor based on several factors (including strategy, style, and risk exposures) and evaluated monthly. Simple Alternatives conducts at least two on-site subadvisor visits per year including one with the chief compliance officer. ■■■

S1 Fund I (USD)

Standard Index
S&P 500 TR

Category Index
BarCap US Agg Bond TR USD

Morningstar Cat
US OE Multialternative

Performance 05-31-2011					
Quarterly Returns	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total %
2009	—	—	—	—	—
2010	—	—	—	-1.20	—
2011	2.13	—	—	—	3.54
Trailing Returns					
	1 Yr	3 Yr	5 Yr	10 Yr	Incept
Load-adj Mthly	—	—	—	—	2.30
Std 03-31-2011	—	—	—	—	0.90
Total Return	—	—	—	—	2.30
+/- Std Index	—	—	—	—	—
+/- Cat Index	—	—	—	—	—
% Rank Cat					
No. in Cat	—	—	—	—	—
7-day Yield	0.00	—	—	—	—

Performance Disclosure

The Overall Morningstar Rating is based on risk-adjusted returns, derived from a weighted average of the three-, five-, and 10-year (if applicable) Morningstar metrics.

The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost.

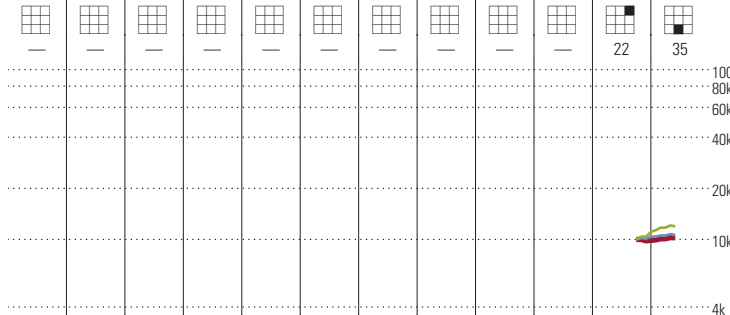
Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please call 866-882-1226 or visit www.S1Fund.com.

Fees and Expenses

Sales Charges	
Front-End Load %	NA
Deferred Load %	NA
Fund Expenses	
Management Fees %	2.75
12b1 Expense %	NA
Gross Expense Ratio %	3.51

Risk and Return Profile

	3 Yr	5 Yr	10 Yr
Morningstar Rating™	—	—	—
Morningstar Risk	—	—	—
Morningstar Return	—	—	—
MPT Statistics			
	Standard Index	Best Fit Index	
Alpha	—	—	—
Beta	—	—	—
R-Squared	—	—	—
12-Month Yield	—	—	—
30-day SEC Yield	—	—	—
Potential Cap Gains Exp	—	—	—



Investment Style	
Equity	22
Stock %	35
Growth of \$10,000	
S1 Fund I	10,230
Category Average	10,616
Standard Index	11,942
Performance Quartile (within category)	
History	
NAV/Price	9.88
Total Return %	10.23
+/- Standard Index	3.54
+/- Category Index	-4.28
% Rank Cat	0.52
No. of Funds in Cat	175

Portfolio Analysis 02-28-2011

Asset Allocation %	Net %	Long %	Short %	Share Chg since 11-2010	Share Amount	Holdings:	% Net Assets
Cash	14.79	14.79	0.00	—	—	0 Total Fixed-Income, — Turnover Ratio	—
US Stocks	16.64	23.06	6.42	—	—	iShares Russell 1000 Growth Index	20.07
Non-US Stocks	6.94	17.80	10.86	—	11,800	Short Russell2000 Proshares .	7.20
Bonds	0.73	0.73	0.00	—	6,606	iShares FTSE NAREIT Mort Pls Cp I	2.37
Other/Not Clsfd	60.91	62.05	1.14	—	5,082	Ally Financial, Inc. 6.625% .	0.96
Total	100.00	118.42	18.42	—	30,000	Canadian Government Bond 3.000% .	0.31

Equity Style	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
P/E Ratio TTM	—	—	—	—
P/C Ratio TTM	—	—	—	—
P/B Ratio TTM	1.7	0.75	—	—
Geo Avg Mkt Cap \$mil	1859	0.04	—	—

Fixed-Income Style	High	Mod	Low
Avg Eff Duration	—	—	—
Avg Eff Maturity	—	—	—
Avg Credit Quality	—	—	—
Avg Wtd Coupon	—	—	5.71
Avg Wtd Price	—	—	—

Credit Quality Breakdown	Stock %	Bond %
AAA	—	—
AA	—	—
A	—	—
BBB	—	—
BB	—	—
B	—	—
Below B	—	—
NR/NA	—	—

Regional Exposure	Stock %	Rel Std Index
Americas	90.6	0.91
Greater Europe	9.4	109.77
Greater Asia	0.0	—

Sector Weightings	Stocks %	Rel Std Index
Cyclical	83.8	2.99
Basic Materials	0.4	0.14
Consumer Cyclical	15.2	1.61
Financial Services	24.9	1.78
Real Estate	43.2	25.90
Sensitive	10.9	0.24
Communication Services	0.0	0.00
Energy	3.2	0.26
Industrials	1.9	0.15
Technology	5.8	0.35
Defensive	5.3	0.20
Consumer Defensive	1.7	0.15
Healthcare	3.6	0.32
Utilities	0.0	0.00

Operations		Ticker:		Incept:	
Family:	S1 Fund	SONEX		09-30-2010	
Manager:	Multiple	Minimum Initial Purchase:	\$1 mil	Type:	NAF
Tenure:	0.8 Year	Min Auto Investment Plan:	\$1 mil	Total Assets:	mil
Objective:	Growth	Minimum IRA Purchase:	\$1 mil		
Base Currency:	USD	Purchase Constraints:	—		

Fund Reports

UBS Fixed Income Opportunities A

by **Mallory Horejs**

Advisor

UBS Global Asset Management

Advisor Location

Chicago, Illinois

Assets Under Management

\$105.1 million (fund)

Inception Date

Nov. 29, 2010

Investment Type

Mutual fund

Morningstar Category

Multisector bond

Management

Brian Fehrenbach runs this fund. He joined UBS in 2006 and is responsible for developing and implementing derivative investment strategies for global bond portfolios. Fehrenbach has 24 years of experience in the investment industry, the past 15 of which were focused on developing, trading, and managing derivative investment strategies. He is assisted by three portfolio managers, Scott Dolan, Hongbing Hsu, and Branimir Petranovic.

Strategy

This opportunistic long/short fixed-income fund follows no benchmark and is diversified across global credit markets, sectors, and maturities. Fehrenbach and his team allocate the investment portfolio to three different sources of fixed-income return: interest-rate risk, credit risk, and currency risk. Management uses derivatives to hedge out undesirable exposures on the portfolio's long positions as well as to obtain additional long or short exposures that the team views as appealing. For example, management may identify a European corporate bond with an attractive credit spread. It will invest in the bond to gain exposure to the credit spread but can use derivatives to strip out the duration and currency-risk components. Although the fund is managed according to a total-return perspective, it does make quarterly distributions; these have been somewhat irregular thus far, but on average the first three distributions were approximately 2.7%. Because of the fund's ability to go short duration and credit, it will likely have low or negative correlation with traditional fixed-income funds (its correlation with the BarCap Global Aggregate Index using weekly data since inception through June 25 is negative 0.56). Over a full market cycle, the fund targets a total return of three-month LIBOR plus 300 basis points with an annualized standard deviation between 4% and 8%.

Process

When constructing the investment portfolio, management leverages the research and trading resources of UBS Global Asset Management. Management begins with a top-down strategy allocation, based upon the macroeconomic views of the UBS Global Fixed Income Investment Committee. Fehrenbach sits on this committee, along with other senior portfolio managers from around the world. Next, management incorporates fundamental, bottom-up analysis using the research and recommendations of specialized credit teams at UBS (high-yield, investment-grade, sovereign credit, municipal bonds, and so on). Analysts on these teams evaluate each credit investment in their research universe and then rank them from 1 to 5 on a fundamental value and risk basis (1 being a positive, high-conviction recommendation). Fehrenbach and his team implement these "best ideas" in the UBS Fixed Income Opportunities portfolio, purchasing assets ranked 1 or 2 and sometimes shorting assets ranked 4 or 5. Portfolio performance attribution is conducted on a monthly basis to evaluate the success of the fund's risk-taking decisions.

Risk Management

Fehrenbach and his team utilize a third-party risk software program to generate daily risk reports for the fund. The team also employs internal risk management systems that monitor value at risk, drawdown impacts, and beta exposures. Management stress-tests individual positions and performs scenario analysis on isolated risk factors as well as on the overall portfolio. Management also assesses risk qualitatively, however, as quantitative risk models are not always reliable. For example, UBS requires that all unconstrained portfolio-management teams meet weekly with the firm's independent risk group, the local chief administrative officer, and the regional manager to discuss and evaluate the fund's risk exposures. The fund invests opportunistically through a risk-budgeting process, but there are no established exposure limits for sectors or currencies. The portfolio durations will range between 5.0 years and negative 5.0 years (duration was 0.37 years as of May 31), and the fund's exposure to a particular corporate credit will typically be no more than 5%. ■■■

UBS Fixed Income Opportunities A (USD)

Standard Index
BarCap US Agg Bond TR USD

Category Index
BarCap US Universal TR USD

Morningstar Cat
US OE Multisector Bond

Performance 05-31-2011					
Quarterly Returns	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total %
2009	—	—	—	—	—
2010	—	—	—	—	—
2011	0.85	—	—	—	-0.03
Trailing Returns					
	1 Yr	3 Yr	5 Yr	10 Yr	Incept
Load-adj Mthly	—	—	—	—	-2.41
Std 03-31-2011	—	—	—	—	-1.54
Total Return	—	—	—	—	2.19
+/- Std Index	—	—	—	—	—
+/- Cat Index	—	—	—	—	—
% Rank Cat					
No. in Cat	—	—	—	—	—
7-day Yield	—	—	—	—	—

Performance Disclosure

The Overall Morningstar Rating is based on risk-adjusted returns, derived from a weighted average of the three-, five-, and 10-year (if applicable) Morningstar metrics.

The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost.

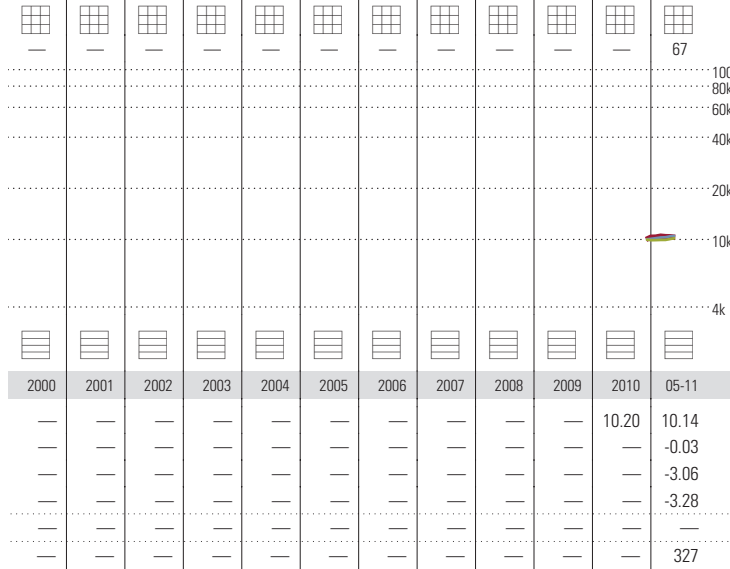
Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please call 800-647-1568 or visit www.ubs.com.

Fees and Expenses

Sales Charges	
Front-End Load %	4.50
Deferred Load %	NA
Fund Expenses	
Management Fees %	0.65
12b1 Expense %	0.25
Gross Expense Ratio %	1.60

Risk and Return Profile

	3 Yr	5 Yr	10 Yr
Morningstar Rating™	—	—	—
Morningstar Risk	—	—	—
Morningstar Return	—	—	—
MPT Statistics			
	Standard Index	Best Fit Index	
Alpha	—	—	
Beta	—	—	
R-Squared	—	—	
12-Month Yield	—		
30-day SEC Yield	3.25%		
Potential Cap Gains Exp	—		



Investment Style	
Fixed-Income Bond %	67
Growth of \$10,000	
UBS Fixed Income Opportunities A 10,301	—
Category Average 10,479	—
Standard Index 10,191	—
Performance Quartile (within category)	
History	—
NAV/Price	10.20
Total Return %	10.14
+/- Standard Index	-0.03
+/- Category Index	-3.06
% Rank Cat	-3.28
No. of Funds in Cat	327

Portfolio Analysis 03-31-2011

Asset Allocation %	Net %	Long %	Short %
Cash	3.07	3.07	0.00
US Stocks	0.00	0.00	0.00
Non-US Stocks	0.00	0.00	0.00
Bonds	71.45	71.45	0.00
Other/Not Clsfd	25.47	31.82	6.35
Total	100.00	106.35	6.35

Equity Style	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
Value Blend Growth	P/E Ratio TTM	—	—	—
Large Mid Small	P/C Ratio TTM	—	—	—
	P/B Ratio TTM	—	—	—
	Geo Avg Mkt Cap \$mil	—	—	—

Fixed-Income Style

Fixed-Income Style	Port Avg	Rel Index	Rel Cat
Ltd Mod Ext	Avg Eff Duration	—	—
High Mid Low	Avg Eff Maturity	—	—
	Avg Credit Quality	—	—
	Avg Wtd Coupon	6.13	—
	Avg Wtd Price	104.78	—

Credit Quality Breakdown	Bond %
AAA	—
AA	—
A	—
BBB	—
BB	—
B	—
Below B	—
NR/NA	—

Regional Exposure	Stock %	Rel Std Index
Americas	—	—
Greater Europe	—	—
Greater Asia	—	—

Share Chg since: —, Share Amount: —, Holdings: 0 Total Stocks, 0 Total Fixed-Income, % Net Assets: —, Turnover Ratio: —

Sector Weightings

Sector	Stocks %	Rel Std Index
Cyclical	—	—
Basic Materials	—	—
Consumer Cyclical	—	—
Financial Services	—	—
Real Estate	—	—
Sensitive	—	—
Communication Services	—	—
Energy	—	—
Industrials	—	—
Technology	—	—
Defensive	—	—
Consumer Defensive	—	—
Healthcare	—	—
Utilities	—	—

Operations

Family:	UBS	Ticker:	FNOAX	Incept:	11-29-2010
Manager:	Multiple	Minimum Initial Purchase:	\$1,000	Type:	MF
Tenure:	0.6 Year	Min Auto Investment Plan:	\$1,000	Total Assets:	\$105.13 mil
Objective:	Multisector Bond	Minimum IRA Purchase:	\$1,000		
Base Currency:	USD	Purchase Constraints:	—		

Fund Reports

United States Commodity Index

by **Abraham Bailin**

Advisor

SummerHaven Investment Management

Advisor Location

Stamford, Connecticut

Assets Under Management

\$468 million (fund)

Inception Date

Aug. 10, 2010

Investment Type

Exchange-traded fund

Morningstar Category

Commodities broad basket

Management

SummerHaven Investment Management was founded by Adam Dunsby, Kurt Nelson, Ashraf Rizvi, and K. Geert Rouwenhorst, Ph.D., in 2009. Prior to starting SummerHaven, Dunsby co-founded a quantitative global macro and commodities firm, Nelson ran UBS' commodity index business, and Rizvi headed commodity trading for UBS Investment Bank. Rouwenhorst is currently a professor of finance at Yale School of Management.

Strategy

United States Commodity Index, or USCI, is a rules-based, dynamic exchange-traded derivatives fund with two objectives: First, it provides exposure to the most important and most liquid physical commodities in the global economy. Second, it attempts to achieve higher risk-adjusted returns relative to funds tracking traditional commodity indexes. USCI will hold futures contracts with expiration dates as far out as 12 months that stand to maximize gains or minimize losses posed by the implied roll yield. Its methodology provides an outlet for investors who want broad, long-only commodities exposure but who don't want to have to worry if commodity futures markets exhibit backwardation or contango. Long-only commodity indexes typically select the closest-to-expiration or near-term contract. And when futures markets exhibit contango over certain periods, rolling into the next futures contract at expiration can generate losses. This fund charges a 0.95% fee, which is far less than similarly focused mutual funds and only slightly higher than other commodity futures ETFs.

Process

USCI tracks the SummerHaven Dynamic Commodity Index by holding 14 of 27 eligible commodities in equal proportions. Each month, the fund's systematic strategy targets the seven commodities exhibiting the most backwardation (or the least contango) and then the seven commodities with the largest 12-month price change or momentum (in the near-term futures contract). For each of the 14 commodities, the index selects the contract month with the greatest backwardation (not necessarily the closest-to-expiration contract). The strategy adjusts to ensure representation of all six commodity sectors (energy, livestock, grains, industrial metals, precious metals, and softs). The fund rebalances during the last four business days of each month. USCI takes long positions in the futures contracts of its included commodities and margins its positions with U.S. Treasury securities, cash, and cash equivalents, which are held as collateral.

Risk Management

USCI maintains a dynamic futures strategy, looking to minimize losses associated with contangoed markets. The futures curve--the prices of contracts at progressively distant expiration dates--can take an upward slope (known as contango) or downward slope (known as backwardation). This can cause futures and spot returns to decouple, known as basis risk. Many funds roll contracts at predetermined intervals, leaving them vulnerable to losses when the shape of the futures curve shifts over time. While USCI is neither the first fund in the broad commodity-futures ETF space nor the first fund to use a dynamic futures strategy (PowerShares DB Commodity Index Tracking DBC is the closest alternative), its twist on this strategy may prove optimal. Regulatory restrictions cloud the outlook for commodities-based exchange-traded derivative funds. In July 2009, the CFTC proposed a tightening of position limits for all commodities-market participants, ETFs in particular. Although the CFTC has yet to pass a ruling, some commodity ETFs have ceased new share issuance, thus forcing them to trade like closed-end funds and generate significant premiums to the net asset value of the underlying assets. This fund is taxed as a partnership. Investors will receive a Schedule K-1 for tax-filing purposes. Taxes must be paid regardless of whether distributions have been made, at 60% at long-term capital gains rates and 40% short-term rates. ■■

United States Commodity Index (USD)

Overall Morningstar Rtg
5 Commodities Broad Basket

Standard Index
Morningstar Long-Only Commodity TR

Category Index
DJ UBS Commodity TR USD

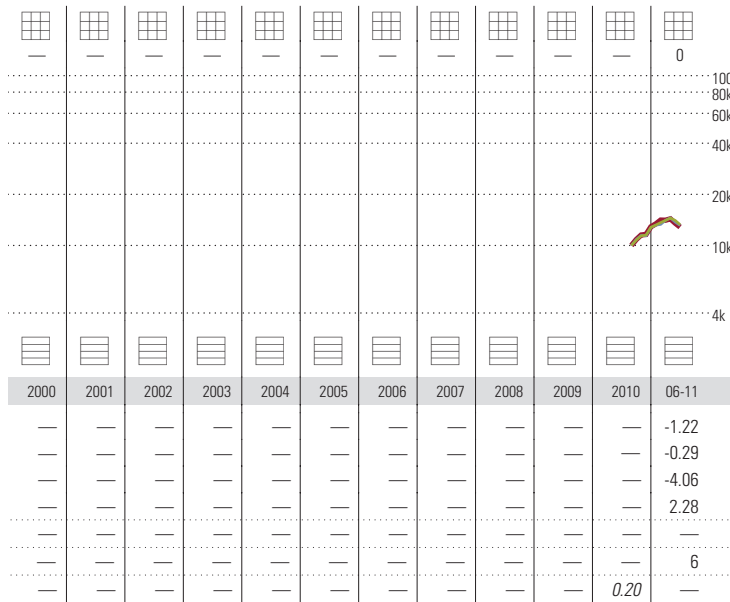
Morningstar Cat
Commodities Broad Basket

Performance 06-30-2011					
Quarterly Returns	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total %
2009	—	—	—	—	—
2010	—	—	—	18.80	—
2011	9.33	-8.81	—	—	-0.29
Trailing Returns					
Std Mkt 06-30-2011	1 Yr	3 Yr	5 Yr	10 Yr	Incept
2011	—	—	—	—	27.14
Std NAV 06-30-2011	—	—	—	—	29.05
Mkt Total Ret	—	—	—	—	27.14
NAV Total Ret	—	—	—	—	29.05
+/- Std Index	—	—	—	—	—
+/- Cat Index	—	—	—	—	—
% Rank Cat	—	—	—	—	—
No. in Cat	—	—	—	—	—

Performance Disclosure
The Overall Morningstar Rating is based on risk-adjusted returns, derived from a weighted average of the three-, five-, and 10-year (if applicable) Morningstar metrics.
The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost.
Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please call 800-920-0259.

Fees and Expenses	
Fund Expenses	
Management Fees %	0.95
Expense Ratio %	1.24
12b1 Expense %	NA

Risk and Return Profile			
	3 Yr	5 Yr	10 Yr
Morningstar Rating™	5 funds	3 funds	—
Morningstar Risk	—	—	—
Morningstar Return	—	—	—
	3 Yr	5 Yr	10 Yr
Standard Deviation NAV	—	—	—
Standard Deviation MKT	—	—	—
Mean NAV	—	—	—
Mean MKT	—	—	—
Sharpe Ratio	—	—	—
MPT Statistics	Standard Index	Best Fit Index	
NAV	—	—	—
Alpha	—	—	—
Beta	—	—	—
R-Squared	—	—	—
12-Month Yield	—	—	—
30-day SEC Yield	—	—	—
Potential Cap Gains Exp	—	—	—



Investment Style	
Fixed-Income	0
Bond %	0
Growth of \$10,000	
United States Commodity Index	12,839
Category Average	13,117
Standard Index	13,259
Performance Quartile (within category)	
History	
Mkt Total Ret %	-1.22
NAV Total Ret %	-0.29
+/- Standard Index	-4.06
+/- Category Index	2.28
% Rank Cat	6
No. of Funds in Cat	—
Avg Prem/Discount %	0.20

Portfolio Analysis 05-31-2011

Asset Allocation %	Net %	Long %	Short %	Share Chg since 04-2011	Share Amount	Holdings: 0 Total Stocks, 0 Total Fixed-Income, — Turnover Ratio	% Net Assets
Cash	-0.05	101.68	101.73				
US Stocks	0.00	0.00	0.00				
Non-US Stocks	0.00	0.00	0.00				
Bonds	0.00	0.00	0.00				
Other/Not Clsfd	100.05	100.05	0.00				
Total	100.00	201.73	101.73				

Equity Style			Portfolio Statistics	Port Avg	Rel Index	Rel Cat
Value	Blend	Growth				
Large	—	—	P/E Ratio TTM	—	—	—
Mid	—	—	P/C Ratio TTM	—	—	—
Small	—	—	P/B Ratio TTM	—	—	—
			Geo Avg Mkt Cap \$mil	—	—	—

Fixed-Income Style			Avg Eff Duration	—
Ltd	Mod	Ext	Avg Eff Maturity	—
High	—	—	Avg Credit Quality	—
Mid	—	—	Avg Wtd Coupon	—
Low	—	—	Avg Wtd Price	—

Credit Quality Breakdown		Bond %
AAA	—	—
AA	—	—
A	—	—
BBB	—	—
BB	—	—
B	—	—
Below B	—	—
NR/NA	—	—

Regional Exposure	Stock %	Rel Std Index
Americas	—	—
Greater Europe	—	—
Greater Asia	—	—

Sector Weightings	Stocks %	Rel Std Index
Cyclical	—	—
Basic Materials	—	—
Consumer Cyclical	—	—
Financial Services	—	—
Real Estate	—	—
Sensitive	—	—
Communication Services	—	—
Energy	—	—
Industrials	—	—
Technology	—	—
Defensive	—	—
Consumer Defensive	—	—
Healthcare	—	—
Utilities	—	—

Operations

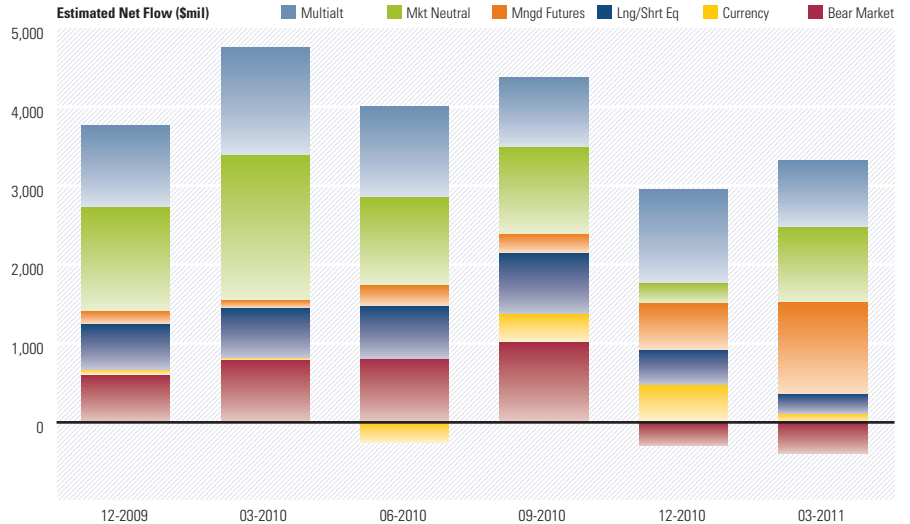
Family:	United States Commodity Funds LLC	Ticker:	USCI	Prem/Discount:	-0.72
Manager:	Multiple	Incept:	08-10-2010	Mkt Price:	63.71
Tenure:	0.9 Year	Exchange:	NYSE ARCA	Base Currency:	USD
Total Assets:	\$472.3 mil	NAV:	64.17		

Flows and Assets Under Management: Alternative Mutual Funds

Quarterly Alternative Mutual Fund Flows

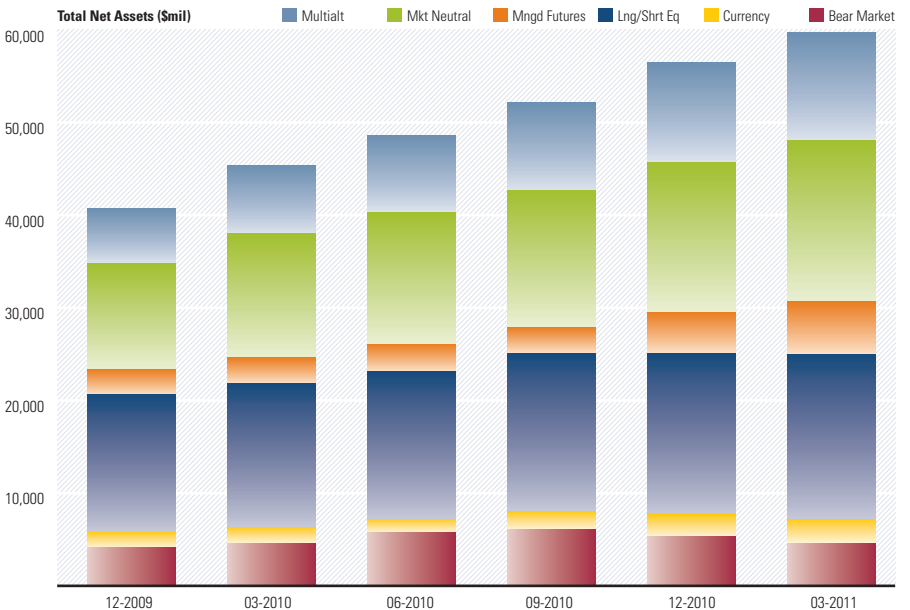
During the first quarter of 2011, alternative mutual funds experienced net inflows of \$2.9 billion, a 9.8% increase from the previous quarter. Funds in the market-neutral category saw net inflows of \$947 million, a 259% increase over the previous quarter. Conversely, funds in Morningstar's bear-market category leaked \$392 million, the largest outflows in nine quarters. Managed-futures funds experienced quarterly inflows of \$1.2 billion, the largest quarterly inflows in the history of the category.

Morningstar recently introduced new alternative mutual fund categories. (See cover story on Page 2). Most of the funds within the existing alternative categories were reassigned to the new alternative categories, with a few exceptions (most notably, long-short debt funds). As a result, the fund flows and assets reported in previous *Alternative Investments Observer* issues will differ from the current and future issues.



Quarterly Alternative Mutual Fund Assets Under Management

Assets under management of all alternative mutual funds increased by 5.8% during the first quarter of 2011 to \$59.7 billion. Collectively, however, these alternative mutual funds still represent less than 1% of total mutual fund assets. All fund categories except for the bear-market category showed an increase in assets under management (because of both negative returns and outflows), while managed-futures funds exhibited the largest quarterly increase (27%) primarily as a result of inflows. Total assets in Morningstar's two largest alternative mutual fund categories, long-short equity and market-neutral, stood at \$17.8 billion and \$17.4 billion, respectively, as of March 31, 2011.

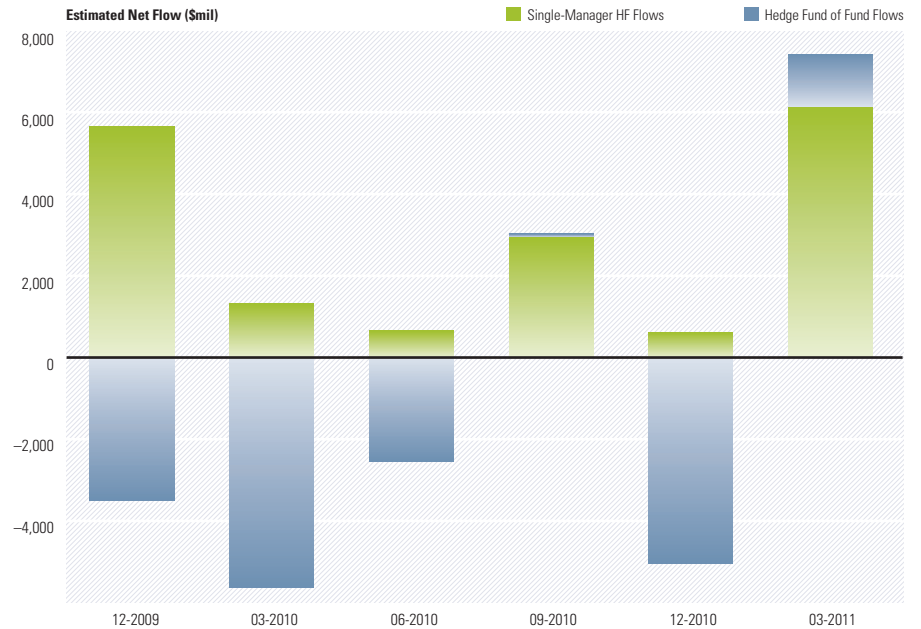


Flows and Assets Under Management: Hedge Funds

Quarterly Hedge Fund Flows

During the first quarter of 2011, single-manager hedge funds and hedge funds of funds in the Morningstar database experienced inflows of \$6.1 billion and \$1.3 billion, respectively, the largest inflows in 11 quarters. Funds in the systematic futures and diversified arbitrage categories experienced the largest inflows of \$4.6 billion and \$1.6 billion, respectively. U.S. long-short equity and convertible arbitrage hedge funds in the database bled \$1.3 billion and \$813.0 million, respectively. Hedge funds of funds experienced inflows of \$1.3 billion in the first quarter, a level not seen since the second quarter of 2008.

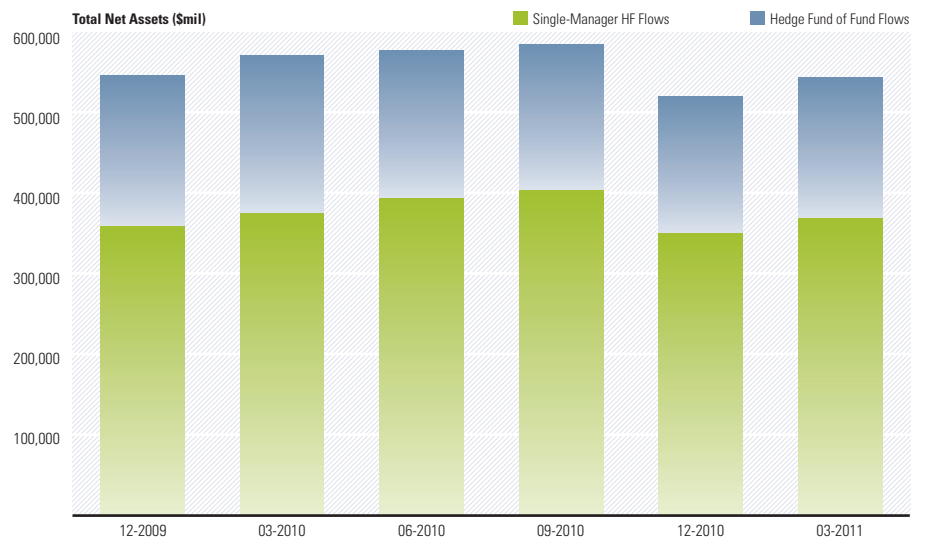
Morningstar recently introduced several new hedge fund categories (volatility and diversified arbitrage, for example) and renamed others (global trend is now systematic futures, for example). As a result, hedge fund data reported in previous *Alternative Investments Observer* issues will differ from current and future issues.



Quarterly Hedge Fund Assets Under Management

Single-manager hedge fund assets in Morningstar's database increased 6.0% over the first quarter. Year on year (as of March 31, 2011), assets under management of single-manager hedge funds fell by 2.8%. Hedge funds of funds within Morningstar's database manage 2.7% more than in the previous quarter because of both positive returns and inflows, but 6.8% less than one year ago.

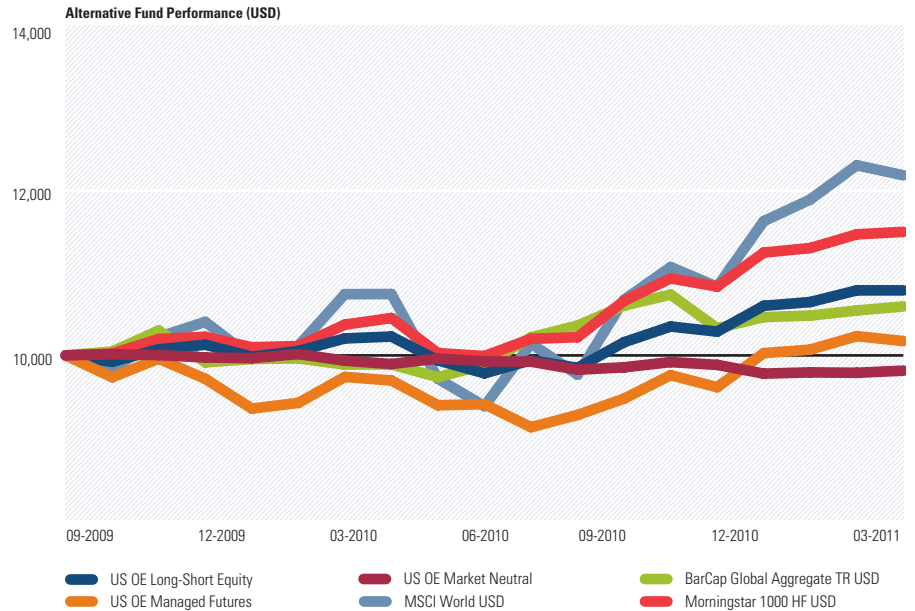
Morningstar does not report total hedge fund industry flows or assets, as these figures are based upon estimates and projections of voluntarily reported information.



Alternative Investment Performance

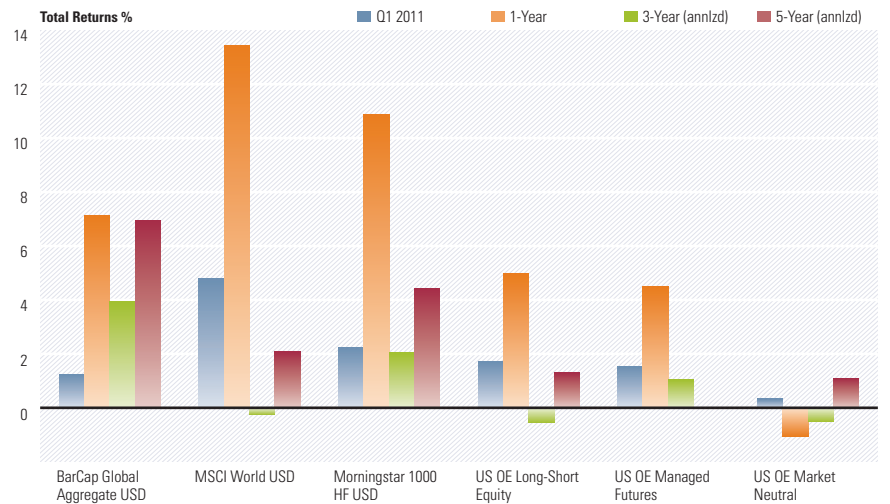
Growth of a \$10,000 Alternative Investment

Hedge funds in Morningstar’s database, as proxied by the Morningstar 1000 Hedge Fund Index, returned 2.2% in the first quarter, while the MSCI World NR Index increased by 4.8%. Over the past 18 months, global stocks have outperformed hedge funds but not on a risk-adjusted basis. The MSCI World NR Index rose by 21.8%, while the Morningstar 1000 Hedge Fund Index increased by 15.0%. Hedge funds in Morningstar’s database substantially outperformed their mutual fund equivalents over the past quarter, as well as over the past 18 months, as hedge funds were able to employ more leverage and invest in less-liquid securities.



Performance of Alternative Investments Over Time

While global stocks (as represented by the MSCI World NR Index) outperformed the average hedge fund (per the Morningstar 1000 Hedge Fund Index) over the quarter ended March 31, 2011, hedge funds have provided better returns over the past three and five years. Global bonds have fared even better than both stocks and hedge funds over these longer-term periods, but bonds experienced a gain of only 1.24% in the first quarter of 2011. Alternative mutual funds underperformed hedge funds and global stocks over the past year, but managed-futures mutual funds outperformed stocks over the three-year period ended March 31, 2011.

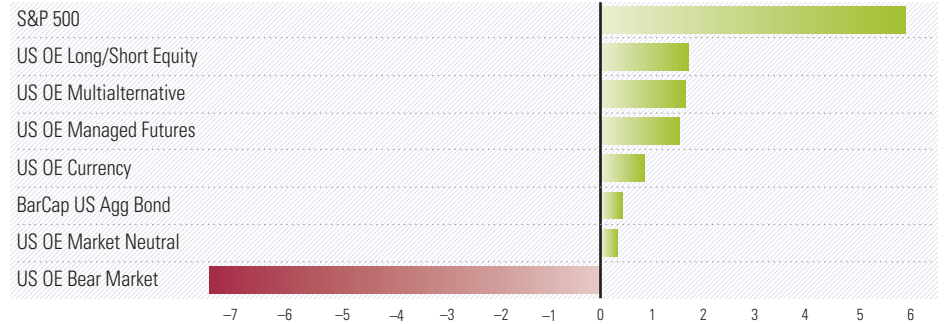


Q1 Performance by Category

Alternative Mutual Funds

A market rally in the first quarter of 2011 continued to hurt mutual funds in the bear-market category. These funds lost 7.6% on average. Long-short equity mutual funds managed only moderate gains of 1.7% on average, while the S&P 500 Index improved by 5.9%. Currency funds gained 0.8% on average for the quarter ended March 31, 2011, but fared better than U.S. bonds, which gained only 0.4%.

Morningstar Alternative Mutual Fund Category Averages: Q1 2011 Total Returns %

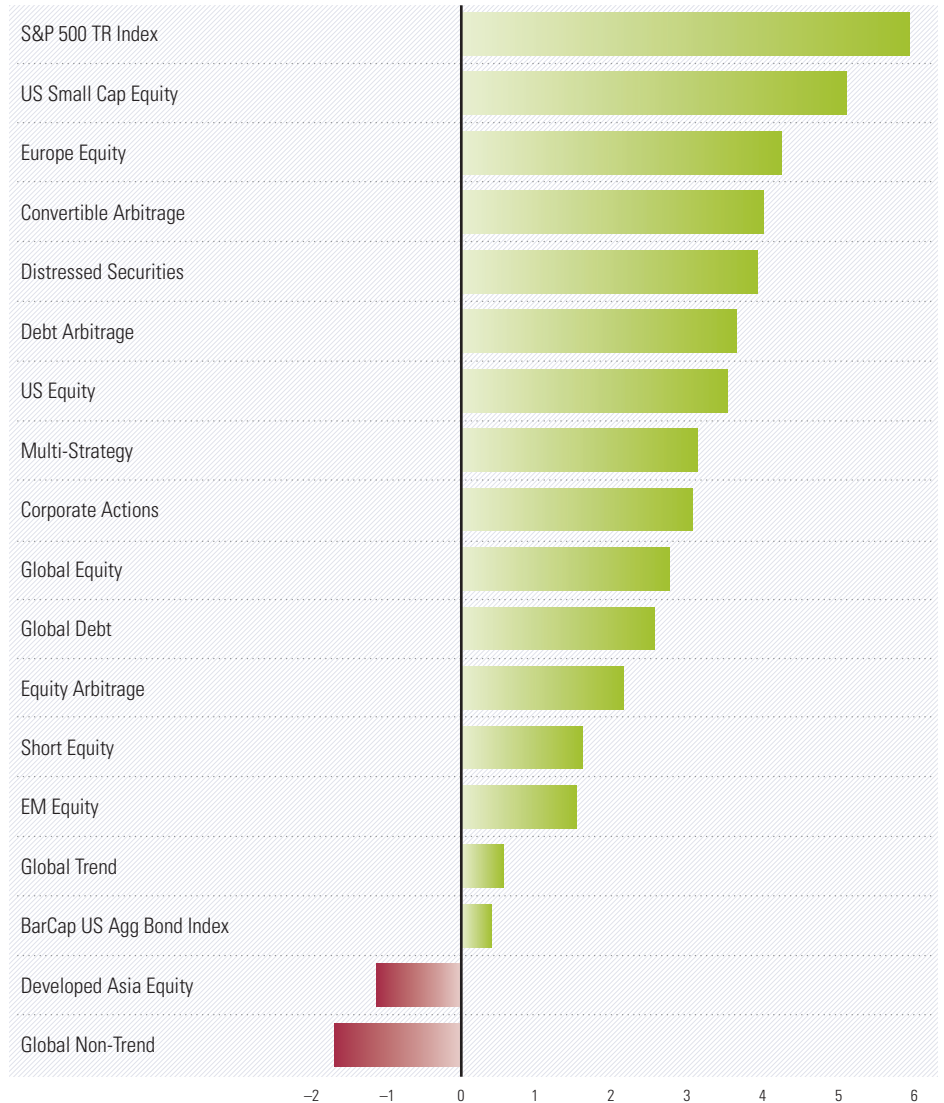


Hedge Funds

In the first quarter of 2011, all but two of Morningstar's hedge fund category indexes, global nontrend and developed-Asia equity, experienced gains. None of them, however, were able to outpace the S&P 500 Index. The Morningstar U.S. Small Cap Equity and the Morningstar Europe Equity Hedge Fund indexes experienced the largest increases, of 5.1% and 4.2%, respectively.

Morningstar is in the process of creating indexes for its new hedge fund categories.

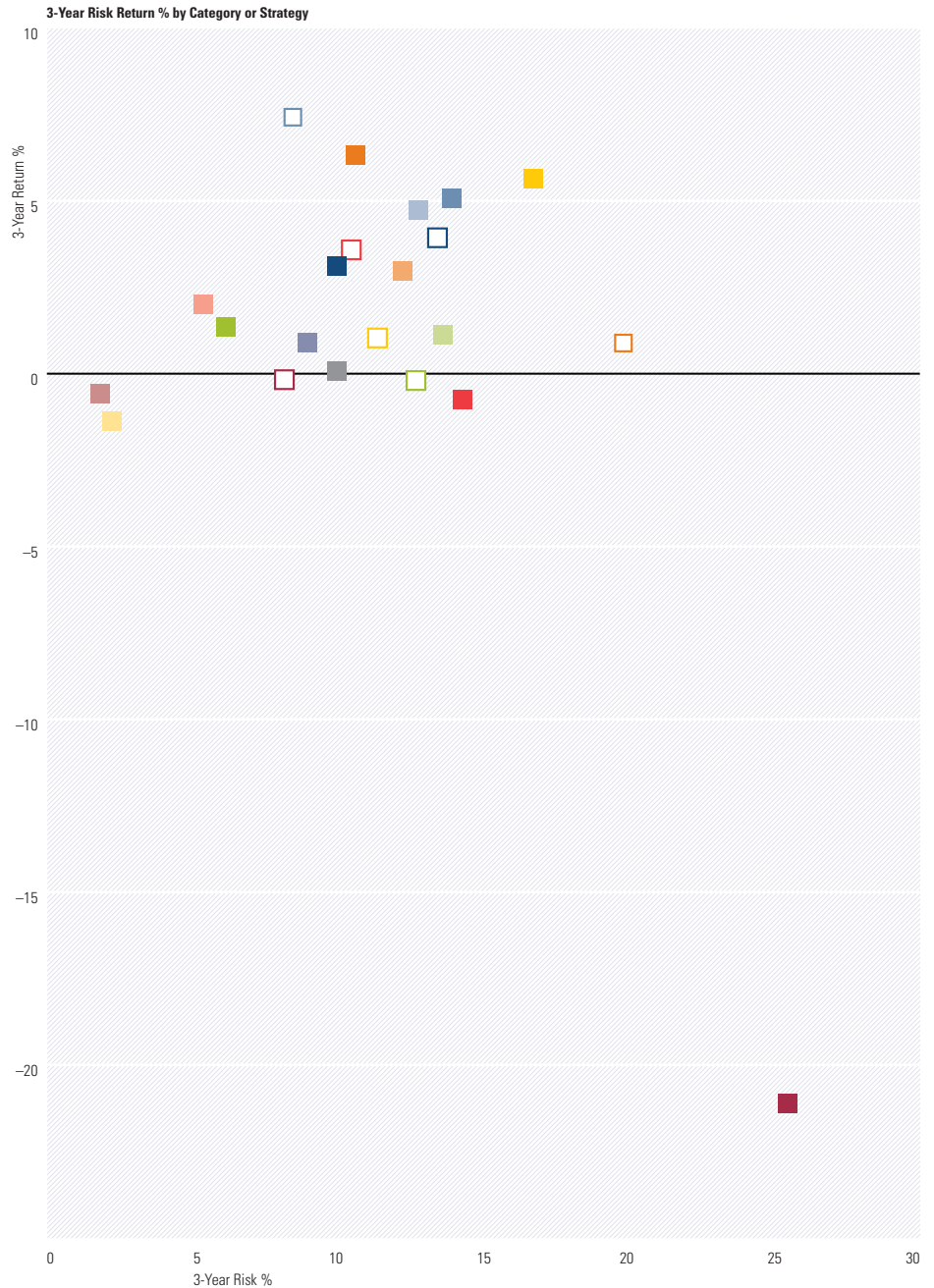
Morningstar Hedge Fund Category Indexes: Q1 2011 Total Returns %



Risk Versus Return: Alternative Mutual Funds and Hedge Funds

Three-Year Standard Deviation and Return

Sixteen alternative-investment category indexes and averages provided positive returns over the three years ended March 2011. Both the Morningstar Debt Arbitrage and the Morningstar Distressed Securities Hedge Fund indexes saw the largest increases, of 7.4% and 6.3%, respectively, helped by dislocations in the credit markets. In terms of risk-adjusted returns, these two categories of hedge funds also produced the best results over the past three-year period. In contrast, the U.S. bear-market mutual fund category saw a 21.1% decline on average over the three-year period ended March 2011, with the highest standard deviation of all alternative categories, 25.4% annualized. The average market-neutral mutual fund exhibited a similarly poor risk-adjusted return profile, losing 1.4% with a 2.2% annualized standard deviation.



- Convertible Arbitrage
- Corporate Actions
- Debt Arbitrage
- Distressed Securities
- Dvlp Asia Equity
- Emerging Mkt Equity
- Equity Arbitrage
- Europe Equity
- Global Debt
- Global Equity
- Global Non-Trend
- Global Trend
- Multi-Strategy
- Short Equity
- US Equity
- US OE Bear Market
- US OE Currency
- US OE Long-Short
- US Small Cap Eqty
- US Market Neutral
- US OE Managed Futures
- US OE Multialternative

Correlations by Alternative Fund Strategy

Three-Year Correlations: Alternative Mutual Fund Categories

	1	2	3	4	5	6
1 US OE Bear Market	1.00					
2 US OE Currency	-0.52	1.00				
3 US OE Long/Short Equity	-0.94	0.57	1.00			
4 US OE Market Neutral	-0.01	0.09	0.15	1.00		
5 US OE Managed Futures	0.21	0.01	-0.21	0.02	1.00	
6 US OE Multialternative	-0.94	0.55	0.99	0.08	-0.23	1.00

Three-Year Correlations: Hedge Fund Category Indexes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Morningstar Convertible Arbitrage HF USD	1.00															
2 Morningstar Corporate Actions HF USD	0.90	1.00														
3 Morningstar Debt Arbitrage HF USD	0.94	0.89	1.00													
4 Morningstar Distressed Sec HF USD	0.69	0.78	0.78	1.00												
5 Morningstar Dvlp Asia Equity HF USD	0.80	0.86	0.78	0.61	1.00											
6 Morningstar EM Equity HF USD	0.87	0.94	0.88	0.74	0.89	1.00										
7 Morningstar Equity Arbitrage HF USD	0.82	0.83	0.77	0.51	0.84	0.83	1.00									
8 Morningstar Europe Equity HF USD	0.81	0.85	0.77	0.60	0.86	0.86	0.94	1.00								
9 Morningstar Global Debt HF USD	0.95	0.91	0.93	0.81	0.77	0.89	0.77	0.77	1.00							
10 Morningstar Global Equity HF USD	0.90	0.94	0.87	0.67	0.92	0.95	0.92	0.92	0.87	1.00						
11 Morningstar Global Non-Trend HF USD	0.64	0.72	0.63	0.38	0.76	0.70	0.83	0.75	0.60	0.77	1.00					
12 Morningstar Global Trend HF USD	0.11	0.29	0.08	0.08	0.40	0.26	0.50	0.48	0.07	0.36	0.65	1.00				
13 Morningstar Multi-Strategy HF USD	0.93	0.97	0.92	0.78	0.88	0.93	0.88	0.88	0.93	0.96	0.73	0.30	1.00			
14 Morningstar Short Equity HF USD	-0.33	-0.22	-0.42	-0.19	-0.12	-0.19	-0.13	-0.07	-0.33	-0.22	-0.09	0.31	-0.23	1.00		
15 Morningstar US Equity HF USD	0.86	0.92	0.82	0.77	0.84	0.90	0.76	0.81	0.86	0.92	0.58	0.18	0.94	-0.18	1.00	
16 Morningstar US Small Cap Equity HF USD	0.84	0.90	0.83	0.76	0.89	0.92	0.79	0.83	0.84	0.93	0.65	0.29	0.94	-0.16	0.96	1.00

■ 1.00 to 0.76
 ■ 0.75 to 0.51
 ■ 0.50 to 0.25
 ■ 0.25 to 0.00
■ 0.00 to -0.24
 ■ -0.25 to -0.49
 ■ -0.50 to -0.74
 ■ -0.75 to -1.00

Correlations of Alternative Funds to Traditional Asset Classes

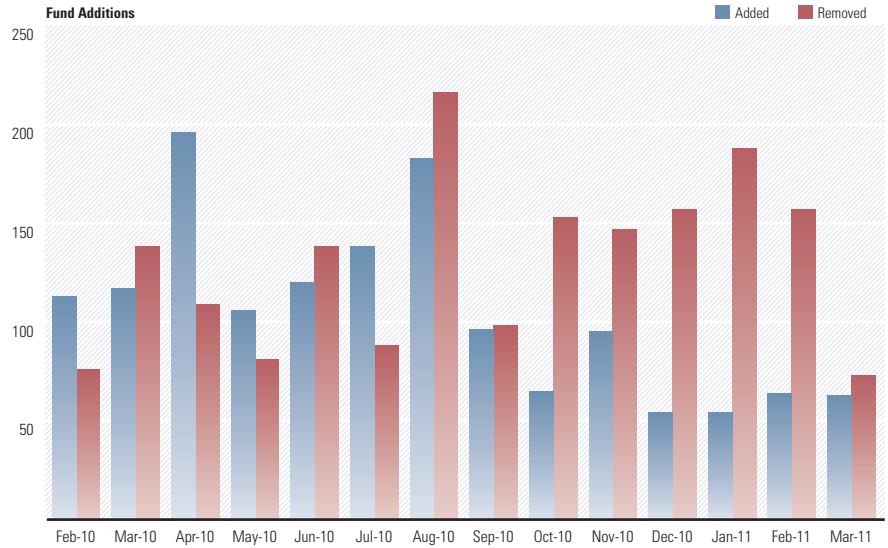
Correlation of Hedge Funds to U.S. Stocks and Bonds	S&P 500 Correlation (USD)			BarCap US Agg Correlation (USD)		
	3-Year	5-Year	10-Year	3-Year	5-Year	10-Year
US OE Bear Market	-0.97	-0.97	-0.96	-0.35	-0.26	0.05
US OE Currency	0.55	0.45	0.06	0.03	0.04	0.28
US OE Long-Short Equity	0.95	0.94	0.81	0.26	0.15	0.09
US OE Market Neutral	0.00	-0.02	-0.34	0.18	-0.03	0.23
US OE Managed Futures	-0.24	N/A	N/A	-0.42	N/A	N/A
US OE Multialternative	0.96	0.95	0.87	0.29	0.23	-0.11

Correlation of Hedge Funds to U.S. Stocks and Bonds	S&P 500 Correlation (USD)			BarCap US Agg Correlation (USD)		
	3-Year	5-Year	Since Index Inception 01-01-2003	3-Year	5-Year	Since Index Inception 01-01-2003
Morningstar 1000 HF USD	0.83	0.79	0.77	0.33	0.21	0.17
Morningstar Convertible Arbitrage HF USD	0.73	0.70	0.65	0.46	0.39	0.30
Morningstar Corporate Actions HF USD	0.76	0.74	0.73	0.30	0.19	0.13
Morningstar Debt Arbitrage HF USD	0.72	0.69	0.65	0.45	0.36	0.34
Morningstar Distressed Sec HF USD	0.66	0.66	0.66	0.06	-0.01	-0.01
Morningstar Dvlp Asia Equity HF USD	0.81	0.76	0.69	0.35	0.25	0.11
Morningstar EM Equity HF USD	0.81	0.76	0.73	0.31	0.18	0.17
Morningstar Equity Arbitrage HF USD	0.69	0.62	0.58	0.39	0.27	0.22
Morningstar Europe Equity HF USD	0.78	0.75	0.72	0.32	0.20	0.16
Morningstar Global Debt HF USD	0.72	0.70	0.67	0.38	0.31	0.29
Morningstar Global Equity HF USD	0.84	0.79	0.78	0.36	0.21	0.13
Morningstar Global Non-Trend HF USD	0.51	0.42	0.42	0.44	0.25	0.28
Morningstar Global Trend HF USD	0.18	0.17	0.21	0.02	-0.05	0.08
Morningstar Multi-Strategy HF USD	0.80	0.77	0.73	0.27	0.16	0.15
Morningstar Short Equity HF USD	-0.09	-0.06	-0.04	-0.43	-0.36	-0.23
Morningstar US Equity HF USD	0.89	0.88	0.87	0.15	0.08	0.04
Morningstar US Small Cap Equity HF USD	0.90	0.88	0.87	0.17	0.09	0.03

Morningstar Hedge Fund Database Overview as of 03-31-2011

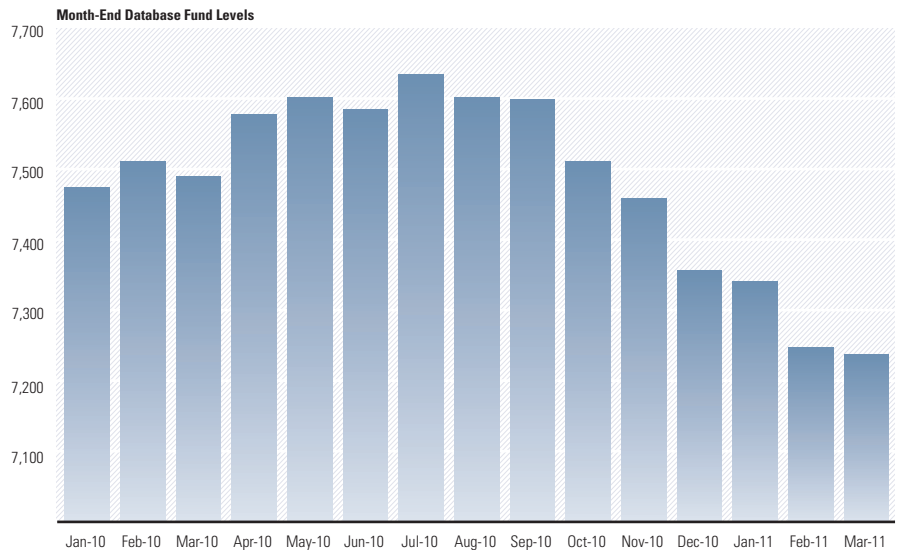
Net Fund Additions by Month

Morningstar’s hedge fund database experienced a net withdrawal of 237 funds during the first quarter of 2011. The database saw 181 additions and 418 fund withdrawals during the quarter. Funds drop out because they have liquidated or because they cease sharing performance data, typically because of poor performance. Previously, Morningstar had reported total funds in the database, including funds with incomplete performance or assets-under-management data. These numbers have been revised to include only funds with more-robust data.



Month-End Database Fund Levels

As of March 31, 2011, the Morningstar hedge fund database contained 7,237 funds with performance history and assets-under-management data. This figure includes both single-manager hedge funds and funds of hedge funds, which accounted for approximately 5,000 and 2,200 funds, respectively. As of the end of the first quarter of 2011, the number of funds in the database had dropped approximately 3.7% from January 2010 levels.

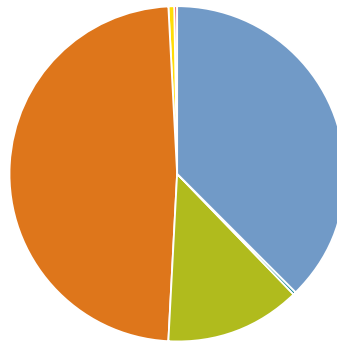


Morningstar Hedge Fund Database Overview as of 03-31-2011

Hedge Funds by Region

Approximately 37% of hedge funds in the Morningstar database are domiciled in the North American/Caribbean region, primarily in the United States and Canada. Many of the Caribbean-based hedge funds are offshore feeder funds established for U.S. tax-exempt investors. Almost 48% of funds in Morningstar's database are domiciled in Europe, including both European Union and non-EU jurisdictions.

Morningstar Hedge Fund Database by Region



Region	# Funds
N. America/Caribbean	2,752
Africa	24
Asia/Australia	945
Europe	3,534
South America	41
Other	15
Total	7,311

Hedge Funds by Location

The United States, Canada, the United Kingdom, Switzerland, France, and China are home to approximately 75% of hedge funds in Morningstar's database. One year ago, hedge funds domiciled in Luxembourg and in the Cayman Islands comprised a much larger part of Morningstar's database.

North America and Surrounding	2,752	Europe	3,534
United States	2,235	United Kingdom	1,480
Canada	233	Switzerland	662
Cayman Islands	126	France	355
Bermuda	71	Sweden	198
British Virgin Islands	35	Luxembourg	173
Bahamas	29	Ireland	109
U.S. Virgin Islands	13	Italy	100
Netherlands Antilles	3	Malta	67
St. Kitts and Nevis	3	Netherlands	65
Barbados	2	Austria	45
Mexico	2	Liechtenstein	43
		Spain	33
Africa	24	Finland	29
South Africa	15	Norway	28
Mauritius	4	Isle of Man	27
Swaziland	4	Germany	24
Botswana	1	Andorra	17
		Denmark	14
Asia and Australia	945	Guernsey	12
China	703	Russia	10
Hong Kong	89	Cyprus	10
Australia	56	Portugal	8
Singapore	53	Jersey	6
Japan	23	Channel Islands	4
Saudi Arabia	7	Belgium	4
Malaysia	4	Gibraltar	3
United Arab Emirates	3	Greece	2
Vietnam	2	Czech Republic	2
Indonesia	2	Ukraine	1
Samoa	1	Slovenia	1
New Zealand	1	Monaco	1
Vanuatu	1	Macedonia	1
		South America	41
		Brazil	36
		Argentina	3
		Chile	2

Morningstar Hedge Fund Database Overview as of 03-31-2011

Service Providers

Morgan Stanley and Goldman Sachs are the largest prime brokerage service providers to hedge funds in Morningstar's database, serving a 30% share combined. The big four accounting firms are employed by approximately 73% of the hedge fund database. Citco Fund Services provides administration services to 8.8% of funds in Morningstar's database. Maples and Calder, Walkers, and Seward & Kissel are the largest legal-service providers to hedge funds in the database with a combined 22% market share.

Type	Rank	Service Provider	% of Database
Prime Broker	1	Morgan Stanley	15.82
	2	Goldman, Sachs & Co.	14.81
	3	UBS	7.86
	4	Credit Suisse	6.60
	5	Deutsche Bank	6.37
	6	JPMorgan	6.24
	7	Newedge Group Inc.	4.19
	8	Merrill Lynch	2.66
	9	BNP Paribas	2.63
	10	Banc of America Securities LLC	2.57
Legal Counsel	1	Maples and Calder	8.64
	2	Walkers	6.75
	3	Seward & Kissel	6.38
	4	Dechert	5.99
	5	Elvinger, Hoss & Prussen	4.49
	6	Simmons & Simmons	3.68
	7	Schulte Roth & Zabel	3.47
	8	Sidley Austin	3.36
	9	Appleby	3.18
	10	Ogier	2.91
Auditor	1	Pricewaterhouse Coopers	23.05
	2	KPMG	18.83
	3	Ernst & Young	17.51
	4	Deloitte	13.52
	5	Rothstein Kass	5.98
	6	RSM / McGladery & Pullen	2.68
	7	Grant Thornton	2.39
	8	BDO	2.23
	9	Cabinet Patrick Sellam	1.32
	10	Eisner	1.30
Administrator	1	Citco	8.83
	2	HSBC	4.46
	3	Apex	3.18
	4	Citigroup	3.16
	5	CACEIS Fastnet	2.84
	6	CIBC / BNY Mellon	2.48
	7	Northern Trust	2.30
	8	UBS	1.89
	9	Fortis Bank	1.46
	10	International Fund Services	1.27

Alternative Investments Observer

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