Funds of Hedge Funds Take the Wrong Risks

Sloppy manager selection and portfolio construction.

Stan Beckers, Ross Curds, and Simon Weinberger

The phenomenal growth of hedge funds is well documented. Both the academic and the professional literature often attribute this growth to characteristics such as:

- Better alpha returns due to more highly skilled investment talent.
- More inefficiencies on the short side of portfolios.
- An environment of fewer constraints and less regulation.
- Low correlation with other asset classes.
- Superior downside protection.
- Access to a fund manager's best ideas.[1]

Hedge funds, however, also suffer from opaque reporting, short track records of low-frequency returns, loosely defined investment styles, high minimum investment requirements, high fees, and low liquidity. Some of these disadvantages are at least partially addressed by funds of hedge funds, which justify their additional layer of fees on the basis of the manager selection, due diligence, risk management, and portfolio construction services they provide.

Yet in a young and growing industry, hype is not always easily separated from true value-added. The hedge fund literature is ambiguous on the performance of funds of hedge funds relative to individual hedge funds; Brown, Goetzmann, and Liang [2004] as well as Malkiel and Saha [2005] find that funds of hedge funds have lower Sharpe ratios. Ang, Rhodes-Kropf, and Zhao [2005] argue that funds of hedge funds can compete with a direct investment in hedge funds, especially when taking into account the additional costs (such as minimum investment requirements and the costs of evaluating and monitoring).

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We try to establish to what extent the typical fund of hedge funds provides a superior product worth the additional cost. In other words, do funds of hedge funds on average deliver true, skill-based returns (alpha) after fees, or can they largely be replicated using a limited set of easily (and cheaply) traded market factors? Can they identify and select the better hedge funds?

We use a straightforward multifactor model to separate systematic and mechanical return components from alpha, and analyze the characteristics of these residual returns (particularly their significance and persistence through time). We first summarize some salient features of the fund of hedge funds industry and compare its returns to returns of the underlying hedge funds. We also explain the usefulness of a factor model, paying special attention to the size, significance, and persistence of the alphas. Finally, we summarize the implications of our study for the fund-of-fund industry and its potential investors.

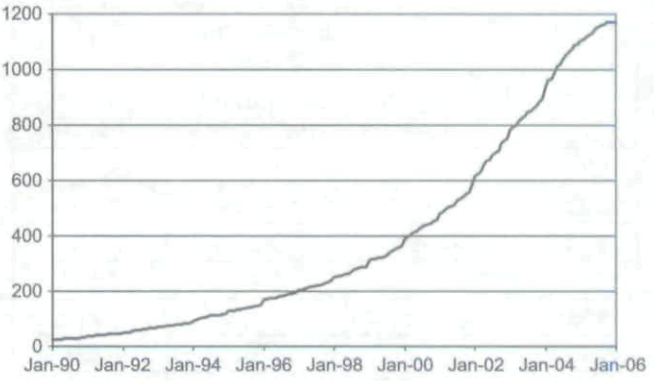
VITAL STATISTICS

Our data universe comprises fund of hedge funds returns provided by Hedge Fund Research, HedgeFund.Net, Lipper TASS, the Center for International Securities and Derivatives Markets (CISDM), Eurekahedge, and Morgan Stanley Capital International. All returns are reported net of fees (i.e., taking into account all fees charged by the underlying hedge funds and fees charged by the funds of funds). The universe is de-duplicated (using the longest history available for a fund), triaged (focusing on dollar-denominated funds, preferring where possible the off-shore version over the on-shore equivalent), and cleansed of obvious data errors. We retain the funds that stopped contributing data to mitigate the effect of possible survivorship bias.[2]

Exhibit 1 summarizes the growth of funds in our universe since January 1990. Although the number of funds has grown exponentially, the industry is dominated by a limited number of sizable players, as illustrated by Exhibit 2. In fact, as of December 2005 the top 25% of the funds managed 75% of the total; the average fund of hedge funds managed (roughly) $175 million.

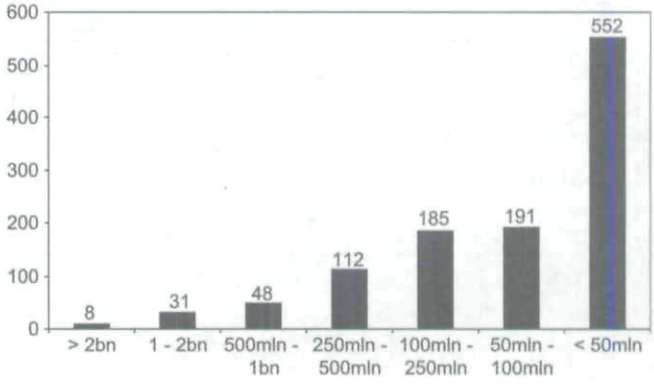
Surprisingly, funds of hedge funds have not adopted the same fee arrangement as the hedge funds themselves. They almost invariably charge a flat management fee as well as a performance-related fee. The most popular fee structure is 1 and 10 (1% management fee and 10% performance fee), although an equal-weighting of the fees

EXHIBIT 1
Growth of Funds of Hedge Funds



Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, and MSCI, as of 1/31/06.

EXHIBIT 2
Size Distribution of Funds of Hedge Funds



Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, and MSCI, as of 12/31/05.

across all funds yields an average base fee of 1.30% with a performance fee of 8.11%. Interestingly, only 21% of the funds of hedge funds in our universe apply a hurdle rate (typically over cash) when calculating the performance fee.[3]

WHERE IS THE VALUE-ADDED?

Funds of hedge funds justify their fees on the basis of various value-added services they provide. One of the more important of these is their perceived ability to identify (and gain access to) the better hedge funds. Unfortunately, at first glance, the typical fund of hedge funds does not succeed in fulfilling this promise.

EXHIBIT 3

Fund of Funds versus Hedge Fund Returns

	HFRI Fund Weighted Composite	HFRI Fund of Funds Composite Index	Difference
1991	32.19%	14.50%	17.69%
1992	21.22%	12.33%	8.89%
1993	30.88%	26.32%	4.56%
1994	4.10%	-3.48%	7.58%
1995	21.50%	11.10%	10.40%
1996	21.10%	14.39%	6.71%
1997	16.79%	16.20%	0.59%
1998	2.62%	-5.11%	7.73%
1999	31.29%	26.47%	4.83%
2000	4.98%	4.07%	0.91%
2001	4.62%	2.80%	1.83%
2002	-1.44%	1.01%	-2.45%
2003	19.56%	11.61%	7.95%
2004	9.00%	6.86%	2.14%
2005	9.30%	7.47%	1.82%
Average	15.18%	9.77%	5.41%
Average 1996-2005	11.78%	8.58%	3.21%

Source: Hedge Fund Research, as of 12/31/05.

EXHIBIT 4

Funds of Funds versus Individual Hedge Funds (annual averages, 1991-2005)

	Funds of Funds			Individual Hedge Funds		
	Bottom quartile	Median	Top quartile	Bottom quartile	Median	Top quartile
Total return	6.32%	10.28%	15.09%	5.47%	12.95%	23.20%
Excess return	1.46%	5.42%	10.23%	0.61%	8.09%	18.34%
Standard deviation	3.84%	6.13%	8.86%	6.23%	11.48%	18.66%
Sharpe ratio	0.33	1.08	2.06	0.07	0.92	1.87

Source: Hedge Fund Research, as of 12/31/05.

In Exhibit 3, we compare the HFRI fund-weighted composite returns over the last 15 years to returns of the HFRI fund of funds composite index. On average, the typical fund of funds underperformed the fund-weighted composite by more than 5 percentage points per year.[4]

Although these differences have become less pronounced in the recent past, it is still notable that the funds of hedge funds managed to outperform the hedge fund composite in only one year—in 2002 by 2.45 points. Similar insights are obtained when we compare the returns of funds of funds to those of the individual hedge funds by quartile.[5]

Exhibit 4 summarizes these results. While the top-quartile funds of funds managed to outperform the median hedge fund by 2.14 percentage points on average per year, they severely lagged the top-quartile hedge funds—by 8.11 percentage points per year on average. The bottom-quartile funds of funds barely managed to outperform the bottom-quartile hedge funds (by 85 basis points per year). While there is no doubt that there are some excellent funds of hedge funds that manage to outperform the median hedge fund, there is little evidence that funds of hedge funds on average are return enhancers.

Funds of hedge funds certainly do provide risk diversification, and their risk levels are significantly lower than those of individual hedge funds. As a result, the Sharpe ratios of funds of hedge funds look very encouraging, and even the bottom-quartile funds of funds have delivered very attractive risk-adjusted returns. It is also worth noting that the absolute levels of the Sharpe ratios compare very favorably with those of long-only funds (where even the best-performing funds would rarely have a Sharpe ratio over 0.75).

The gap between the Sharpe ratios of the top- and bottom-quartile fund of hedge fund performers, however, is substantial. To gain insight into which funds of hedge funds manage to deliver the better risk-adjusted performance, we regress the monthly crosssections of fund of funds Sharpe ratios on their base fee, performance fee, assets under management, and age.[6]

Exhibit 5 reports the results using the standard Fama-MacBeth [1973] methodology. All variables are highly significant. Management fees detract from (risk-adjusted) performance, while performance fees align the interests of manager and client, and provide the right incentives for managers to deliver their best. Younger and bigger funds perform better than older and smaller funds, all else equal.[7]

The positive impact of incentive fees on Sharpe ratios is consistent with the findings of Elton, Gruber, and Blake [2003] for the mutual fund industry. Brown,

EXHIBIT 5

Relation Between Fund of Funds Sharpe Ratios and Fees, Age, and Size (January 1996-July 2005, 115 months)

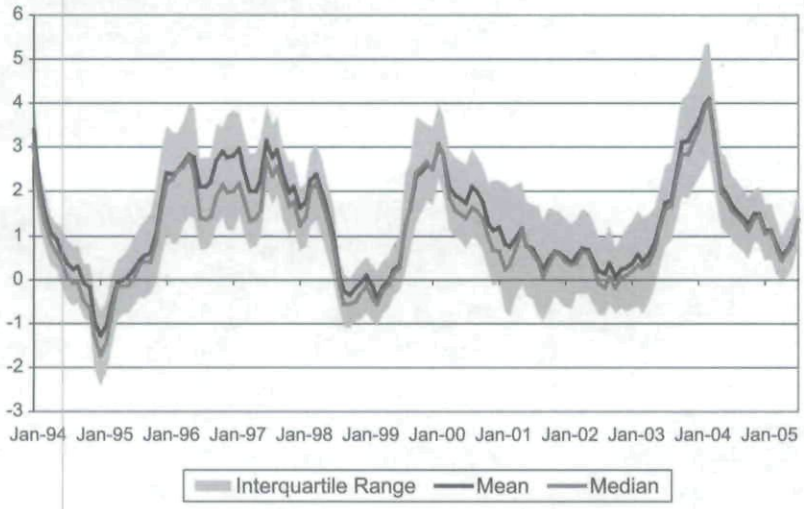
	Intercept	Management fee	Performance fee	Age	Size
Estimate	0.86	-28.12	1.02	-0.0026	0.16
t-Stat	13.57	-13.11	14.88	-10.36	24.14

Average R^2: 11.14% **Average adjusted R^2:** 9.12%

Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, as of 7/31/05.

EXHIBIT 6

Time Series of Moving Window Annual Sharpe Ratios for Funds of Hedge Funds: Mean, Median, and Interquartile Range*



**The moving window annual Sharpe ratio is the cumulative 12-month excess return divided by the (annualized) standard deviation of the 12-month excess return.*

Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, 1994-2005.

Goetzmann, and Liang [2004] confirm this effect for individual hedge funds as well as fund of hedge fund returns (although the relation is less significant for their fund of hedge fund universe).

While these insights may help us identify the better funds of hedge funds, so far we have ignored the nature of the returns they deliver. Indeed, the typical hedge fund investor hopes to access unique, skill-based returns that are not available in any other form.

WOLVES IN SHEEP'S CLOTHING?

Healthy risk-adjusted returns are one of the attractions of funds of hedge funds, and indeed, as evidenced by Exhibit 6, funds of hedge funds have consistently delivered strong Sharpe ratios.

Except for brief periods at the end of 1994 and start of 1995, and the end of 1998 and start of 1999, the typical fund of hedge funds managed to deliver a positive Sharpe ratio over the period. The overall average Sharpe ratio for the mean fund over the 15-year history is a very impressive 1.33. Even in the recent past, the typical Sharpe ratio has generallly exceeded 1.0. The interquartile range is fairly narrow, and even the bottom-quartile fund of hedge funds has delivered strongly positive Sharpe ratios for extended periods of time.

The naive investor, driven mainly by the avoidance of negative returns and by impressive risk-adjusted performance, may well consider funds of hedge funds a very attractive investment alternative. A closer inspection, however, should take some of the shine off these statistics.

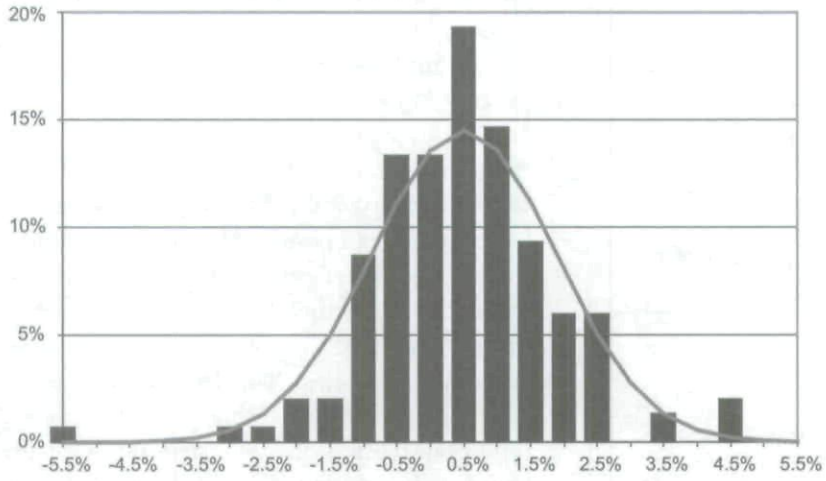
Funds of hedge funds, in principle, hold a diversified portfolio of hedge funds. The central limit theorem would lead us to expect a normal distribution for fund of hedge fund (excess) returns, even though a high proportion of individual hedge fund returns themselves are highly non-normal (see, for example, Kat [2004] or Malkiel and Saha [2005]).[8]

The histogram of monthly average fund of hedge funds excess returns in Exhibit 7 reveals that this is not the case, and that the non-normality feeds through to funds of hedge funds. (The distribution is slightly left-skewed and has fat tails.)

There is no reason to assume that alpha (skill-based) returns would be non-normal. In fact, non-normality should typically arise from exposure to a systematic factor (or a mechanical option-like trading strategy). The non-normality of the fund of hedge funds returns therefore leads us to suspect that they are at least to some degree made up of a limited set of systematic factor returns (that do not diversify quickly).

EXHIBIT 7

Histogram of Monthly Average Excess Fund of Hedge Funds Returns (January 1990-June 2005)



Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, 1990-2005.

EXHIBIT 8

Fundamental Factors in Fund of Hedge Fund Returns and Their Monthly Return Characteristics (1994-2005)

	Median	Mean	Std Dev	Skew	Kurtosis
Frank Russell 1000	0.93%	0.34%	4.30%	-0.82	1.29
MSCI Emerging Markets Index	0.42%	-0.17%	6.87%	-1.23	3.97
MSCI World ex-US Index	0.30%	0.05%	4.22%	-0.61	0.63
US Small – Large (Russell 2000 – Russell 1000)	-0.23%	-0.03%	3.53%	-0.02	3.89
US Growth – Value (Russell 1000 Growth – Russell 1000)	0.00%	-0.09%	1.86%	-0.82	4.46
Lehman High Yield Index	-0.46%	-0.36%	2.21%	-0.01	2.99
Lehman Emerging Markets Bond Index	0.27%	-0.31%	4.32%	-3.49	26.12
Goldman Sachs Commodity Index	0.52%	0.32%	5.74%	-0.04	0.36

Sources: Russell, MSCI Barra, Lehman Brothers, and Goldman Sachs, 1994-2005.

To test this hypothesis, we use a set of well-known market exposures to explain the 36-month moving window of individual fund of hedge fund returns. Exhibit 8 summarizes the list of factors used. These factors are broadly in line with what other researchers have used for individual hedge funds.[9]

Among others, Fung and Hsieh [2004] find that hedge funds are sensitive to size and growth factors, and Patton [2005] shows that even so-called market-neutral funds regularly exhibit significant market exposure, making it hard to incorporate them in a straightforward asset allocation exercise (Dopfel [2005]). Note that virtually all of these factors have exhibited highly non-normal monthly returns over the past 12 years (they are all negatively skewed and have high kurtosis—the Jarque-Bera statistic shows significant deviation from normality for all series except for the Goldman Sachs Commodity index). This would mean that any significant and persistent exposure to them will lead to non-normality (especially since these factors, on average, are positively correlated with each other; their average correlation over the past 12 years has been 0.30).

Exhibit 9 summarizes the R-squared of the 36-month moving window regressions for the universe of funds of hedge funds. The time series mean R-squared for the average fund is 38.1% (38.9% for the median fund), while the top-quartile (bottom-quartile) fund of hedge funds (ranked by explanatory power) usually has an R-squared of around 55% (20%). For the typical fund of hedge funds, roughly 40% of return variability can be accounted for by the eight systematic factors.

Exhibit 10 summarizes the average factor exposure through time for the median, top-quartile, and bottom-quartile fund. With the exception of the growth-value factor, most funds, on average, had a positive exposure to the various factors.

The evidence is that fund of hedge fund investors who hope to get pure skill-based returns are, on average, getting exposure to a large component of fairly straightforward and easily replicated market factors. This obviously prompts us to question whether there is any alpha left after we have extracted the systematic factor returns.

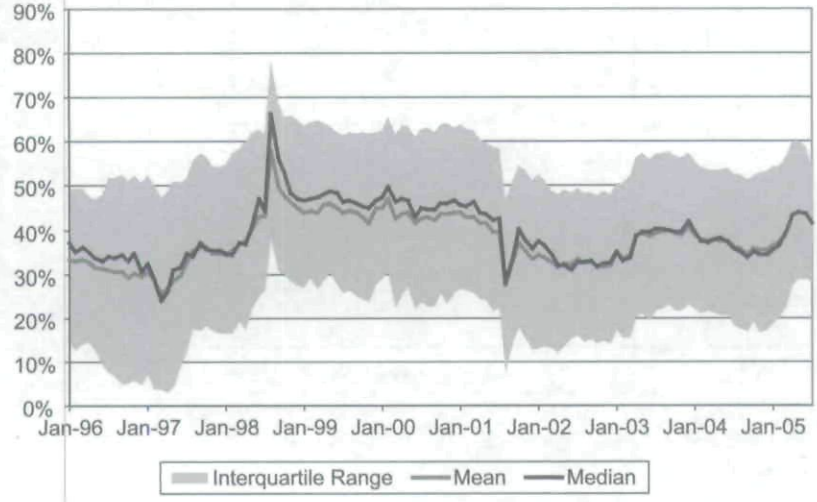
DO FUNDS OF HEDGE FUNDS DELIVER ALPHA?

Given the common factors in fund returns, we can calculate a fund's alpha as the fund's excess return minus the product of:[10]

- The fund's factor exposures (from the last 36-month regression) and
- Factor returns for each month.

EXHIBIT 9

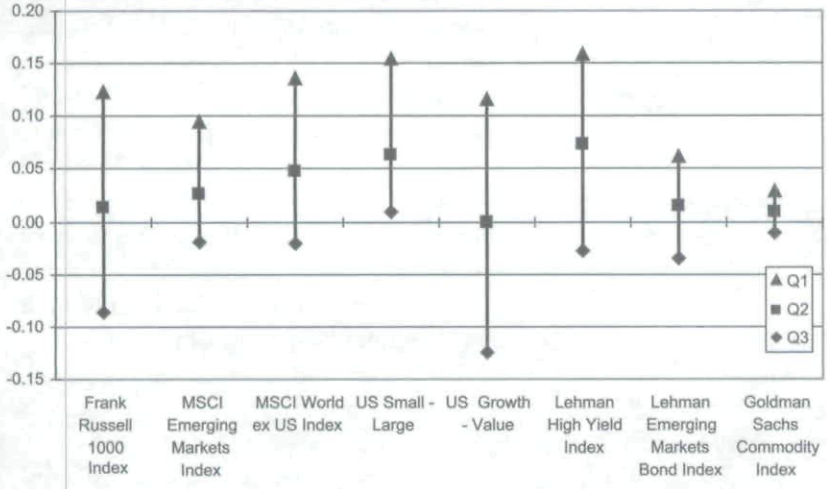
Time Series of 36-Month Moving Window Adjusted R-Squared for Individual Fund of Hedge Fund Returns



Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, 1994-2005.

EXHIBIT 10

Typical Fund of Hedge Fund Factor Exposure



Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, 1994-2005.

The 12-month moving-window alpha is the cumulative 12-month alpha, while the corresponding information ratio divides this cumulative alpha by the annualized standard deviation of the last 12-month alphas.

Exhibit 11 summarizes the time series of the 12-month moving alpha and information ratio for the typical fund of hedge funds (i.e., the mean and the median fund) as well as the interquartile range. The mean (median) fund of hedge funds has—over the last 12 years—on average, delivered an annual alpha of 6.88% (6.16%). Even the bottom-quartile fund of hedge funds has mostly managed to deliver a positive alpha over this period.

Interestingly, on average there is a negative correlation between factor exposure and alpha delivery; the typical correlation between R-squared and alpha is –0.11. The search for funds with low common factor exposure, therefore, not only is useful in its own right, but also can steer the investor toward funds that deliver higher skill-based returns.

The mean (median) fund has, on average, delivered a very impressive information ratio of 1.98 (1.73). Although the alphas have declined markedly in the recent past (averaging 3.00% since January 2002 for the mean fund, 2.58% for the median), the information ratio has remained very healthy at 1.23 for the mean fund (1.04 for the median). This obviously reflects a concurrent reduction in the risk of the typical fund of hedge funds. These results are in line with Fung and Hsieh [2004], who find that a fund of hedge fund index provided an alpha of 5.76% over the period 1994–2002, but that the vast majority of the value-added was generated between October 1998 and March 2000.

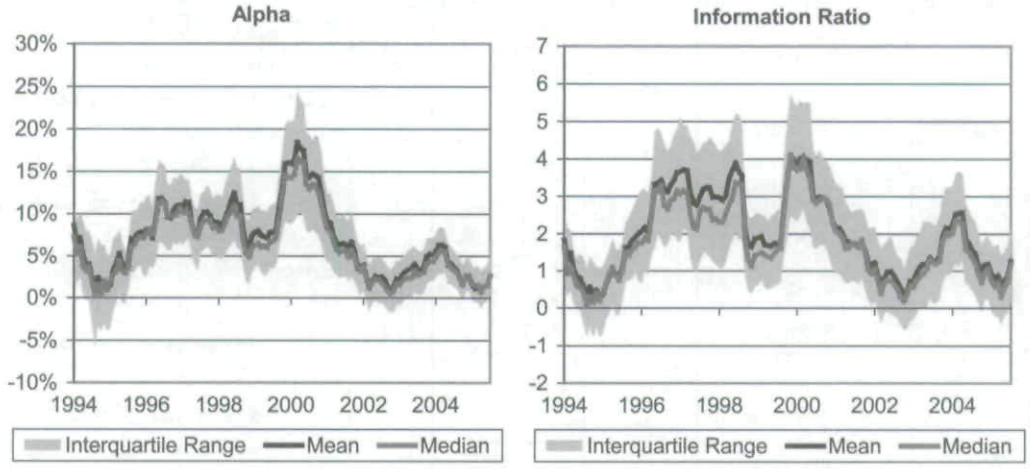
The risk-adjusted performance numbers are particularly impressive. An information ratio of 0.5 would typically put a long-only manager in the top quartile of its peer group. Even the bottom-quartile fund of hedge funds has, over the last 12 years, delivered an average information ratio of 0.73. Funds of hedge funds do seem to deliver highly desirable and significant skill-based returns. Unfortunately they also come wrapped up with less attractive common factor exposures.

THE WRONG RISKS AT THE WRONG TIME

As Exhibit 12 illustrates, the common factor risk exposures taken on by funds of hedge funds have been particularly poorly rewarded. The contribution of the

EXHIBIT 11

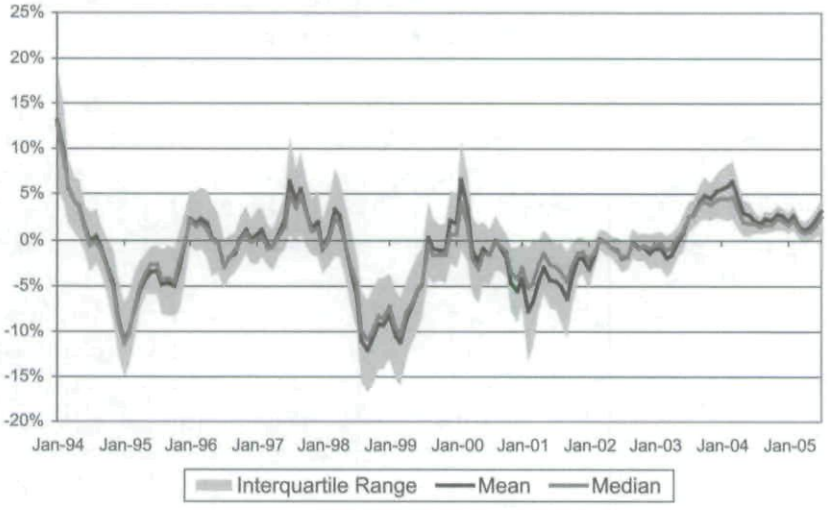
Time Series of Fund of Hedge Fund Alphas and Information Ratios



Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, 1994-2005.

EXHIBIT 12

12-Month Moving Average Common Factor Return for Individual Funds of Hedge Funds



Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, as of 12/31/05.

common factor return to the annual mean (median) fund of funds excess return over the last 12 years has been –0.92% (–0.93%) (and almost consistently negative). Not only is 40% of the risk of the typical fund of hedge funds attributable to easily traded systematic factors, but these risks, on average, have also been negatively rewarded. Also note the very narrow interquartile range for these common factor returns. Funds of hedge funds have been remarkably consistent in taking on the wrong risks at the wrong time.

The inability of most funds of hedge funds to extract a positive risk premium from their factor exposures is further illustrated when we divide up the 12-year history into annual subperiods. In Exhibit 13, we summarize the annual reward per unit of risk for the median fund of hedge funds. We report the Sharpe ratio (excess return for the year divided by annualized risk over the 12-month period); common factor ratio (common factor return divided by the annualized standard deviation of the common factor return); and information ratio (alpha for the year divided by its annualized standard deviation).

The common factor ratio is consistently lower than the information ratio, leading to Sharpe ratios that are almost invariably lower than the information ratios. In fact, while common factors are a significant source of risk for the typical fund of hedge fund, these risks are not rewarded—the common factor return is negative in 8 of the last 12 years. As a result, the Sharpe ratio over the entire history is roughly 30% lower than the information ratio.

This result is very disappointing. The typical fund is taking on significant risks that an investor can buy much

EXHIBIT 13

Sharpe Ratio, Common Factor Ratio, and Information Ratio for the Median Fund of Hedge Fund

Period	N	Median		
		Sharpe ratio	Common factor ratio	Information ratio
Jul-1993 - Jun-1994	118	0.26	-0.01	0.55
Jul-1994 - Jun-1995	158	0.07	-0.56	0.85
Jul-1995 - Jun-1996	207	2.37	-0.19	3.06
Jul-1996 - Jun-1997	258	1.65	0.42	2.22
Jul-1997 - Jun-1998	305	1.33	-0.71	3.19
Jul-1998 - Jun-1999	378	0.33	-0.66	1.43
Jul-1999 - Jun-2000	475	1.43	-0.07	2.61
Jul-2000 - Jun-2001	575	0.81	-0.69	1.59
Jul-2001 - Jun-2002	767	0.37	-0.34	0.65
Jul-2002 - Jun-2003	922	1.28	0.53	1.28
Jul-2003 - Jun-2004	918	1.80	1.24	1.47
Jul-2004 - Jun-2005	895	0.84	0.60	0.69
Full history		1.23	-0.15	1.75

Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, as of 6/30/05.

EXHIBIT 14

Median Fund of Hedge Funds Factor Return

	Russell 1000	MSCI Emerging Markets Index	MSCI World ex-US Index	US Small -Large	US Growth -Value	Lehman High Yield Index	Lehman Emerging Markets Bond Index	Goldman Sachs Commodity Index
1994	-0.19%	3.66%	0.00%	0.31%	0.15%	-2.52%	-0.27%	0.04%
1995	0.32%	-0.96%	0.01%	-0.23%	-1.72%	-0.46%	-0.36%	0.09%
1996	0.94%	0.02%	-0.06%	-0.05%	-0.68%	-0.91%	0.08%	-0.05%
1997	4.20%	0.14%	-0.16%	-0.95%	-0.07%	-0.28%	-0.10%	-0.40%
1998	3.99%	-2.81%	0.10%	-0.74%	-0.30%	-0.31%	-0.29%	-0.98%
1999	0.60%	0.11%	0.07%	-1.88%	-1.11%	-2.86%	-0.60%	-0.03%
2000	0.02%	0.26%	-0.04%	1.11%	-0.25%	-2.59%	0.01%	0.16%
2001	-0.69%	-1.71%	-1.92%	1.79%	0.21%	-0.46%	-0.01%	-0.16%
2002	-0.61%	0.00%	-0.26%	0.87%	-0.20%	-0.27%	-0.26%	-0.13%
2003	0.03%	-0.16%	-0.75%	-0.14%	0.04%	1.67%	0.48%	0.05%
2004	-0.28%	-0.26%	1.42%	0.53%	0.01%	0.11%	-0.08%	0.23%
2005	-0.41%	0.89%	0.86%	0.17%	-0.31%	-0.17%	0.05%	0.27%
Average	0.03%	0.01%	-0.02%	0.06%	-0.23%	-0.38%	-0.09%	0.01%

Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, as of 12/31/05.

more cheaply in the form of exchange-traded funds, but it has not managed to extract a positive premium for these risk exposures.[11]

Exhibit 14 summarizes the performance attribution of the common factor return for the median fund of hedge funds for each of the last 12 years. It turns out that the typical fund has suffered mostly from poor timing of its growth/value exposure as well as from its persistent high-yield exposure. In fact, the contribution is positive for half of the systematic factors, but this is more than outweighed by the poor choice of global equity, growth/value, high-yield, and emerging market bond exposures.

Not only do the common factor returns detract from the performance of the typical fund of hedge funds, but they are also the main culprit for the non-normality of their return distributions. Exhibit 15 summarizes the salient statistical features of the average monthly fund of hedge fund returns. As already illustrated in Exhibit 7, the monthly excess return averaged across all funds of hedge funds is left-skewed and has high kurtosis. This skewness and kurtosis is completely attributable to the common factor returns, while the alphas are normally distributed.

If, over the last 12 years, funds of hedge funds would have managed to deliver only the alpha component of their returns, their investors would have been significantly better off. Returns would have been higher; risks would have been lower; and the returns would have been normally distributed.

WHAT DOES THE PAST TELL US ABOUT THE FUTURE?

So far, our analysis has focused on the fund of hedge funds industry as a whole (as represented by the mean, median, top-quartile, and bottom-quartile funds). While this characterization is interesting, it is not necessarily of practical relevance, as it does not provide any guidance on the possible identification of the higher-quality funds of hedge funds. What can we say about performance persistence?

All studies of performance persistence are hampered by possible survivorship bias in the publicly available databases. We cannot completely avoid this issue either, so the results that follow should be interpreted with caution, even though funds of hedge funds are typically less subject to attrition than individual hedge funds.

Although survivorship bias leads to an inflation of (average) individual hedge fund returns by 200–400 b.p. annually (Malkiel and Saha [2005]), Liang [2004] finds funds of hedge funds to be less prone to survivorship bias. Furthermore, Fung and Hsieh [2000] note that the instant history bias (back-fill bias) is less pronounced for funds

EXHIBIT 15

Salient Characteristics of Monthly Cross-Sectionally Averaged Fund of Hedge Fund Returns (February 1993-July 2005)

	#	StdDev	Mean	Median	Skewness	Excess kurtosis	Jarque Bera	P-value
Excess Return	150	0.014	0.005	0.005	-0.152	2.693	45.89	0.00%
Common Factor Return	150	0.012	0.000	0.001	-1.064	4.444	151.73	0.00%
Specific Return	150	0.007	0.005	0.006	-0.113	0.658	3.02	22.04%

Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, 1994-2005.

EXHIBIT 16

Correlation Between Return (t – 47, t – 12) and Return (t – 11, t)

	Correlation	t-Stat
Excess Return	3.43	1.74
Sharpe Ratio	29.17	15.46
Common Factor Return	12.13	6.19
Common Factor Ratio	7.80	3.97
Alpha	26.45	13.90
Information Ratio	44.07	24.88

Source: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, 1994-2005.

of hedge funds, making their returns more reliable than the returns of individual hedge funds.

For a first measure of persistence, we calculate the correlation between returns over any 36-month period and the subsequent 12-month period. Exhibit 16 summarizes the outcome of this analysis for the various (risk-adjusted) components of return.

The correlation between subsequent returns is remarkably high, especially for the alpha component. Persistence increases even further when returns are analyzed on a risk-adjusted basis. The simple correlation analysis indicates that funds of hedge funds with higher historical information ratios have a fairly high chance of continuing to produce higher-than-average information ratios in the subsequent 12 months.

Similar insights are obtained when we focus on transition tables. Over any 36-month period, we partition the funds of hedge funds into quartiles (by performance). The transition table indicates the probability with which each fund will stay within its quartile or move to another quartile during the next 12 months.

Exhibit 17 summarizes these transition probabilities for the top-quartile fund of hedge funds over the past nine years (the transition probabilities for the bottom-quartile fund are given in Appendix B). The probability that a top-quartile information ratio fund of hedge funds (over the previous 36 months) will remain in the top quartile over the next 12 months is a staggering 51% (remember that 25% is the no-persistence mark). The lowest persistence over any given subperiod is 39%, with the highest at 71%.

The information ratios are consistently more persistent than the Sharpe ratios. This reconfirms the message that common factor returns just muddy the picture; there is no persistence in (risk-adjusted) common factor returns, which is not surprising since timing common factors is probably one of the most difficult investment strategies. Fund of hedge fund managers have historically shown no ability to do so.

The encouraging message, though, is that alphas and especially information ratios persist through time. These results contrast starkly with the long-only world, where virtually no persistence of historical (risk-adjusted) returns has been found. While Elton, Gruber, and Blake [1996] or Hendricks, Patel, and Zeckhauser [1993] find some evidence for persistence of mutual fund performance on a total-return level, Carhart [1997] shows that this persistence is attributable almost entirely to common factors and investment expenses. A similar point is made by Kahn and Rudd [1997] for fixed-income mutual funds.

Fund of hedge fund performance is also much more persistent than performance of individual hedge funds. Goetzmann and Brown [2003] find little persistence in individual hedge fund returns and strong performance clustering of funds within the same investment style. Agarwal and Naik [2004] find some short-term persistence of individual hedge fund excess returns, but only weak evidence on an annual level. Jagannathan, Malakhov, and Novikov [2006], on the other hand, present evidence that past individual hedge fund winners (measured over a three-year period) tend to outperform over the subsequent three years, controlling for common factors and adjusting for potentially stale prices.

IS THIS REAL?

So far, the scorecard for funds of hedge funds looks reasonably encouraging. They deliver high information ratio alphas with remarkable persistence through time. The long-only industry historically has not managed to

EXHIBIT 17

Transition Probabilities of Top-Quartile Funds of Hedge Funds (July 1993-June 2005)

Period		Excess return	Common factor return	Specific return	Sharpe ratio	Common factor ratio	Information ratio
9307-9606	9607-9706	30%	48%	48%	43%	39%	48%
9407-9706	9707-9806	39%	39%	39%	55%	29%	71%
9507-9806	9807-9906	23%	33%	43%	30%	33%	43%
9607-9906	9907-0006	45%	40%	42%	55%	42%	56%
9707-0006	0007-0106	24%	24%	42%	42%	20%	53%
9807-0106	0107-0206	35%	30%	37%	43%	30%	54%
9907-0206	0207-0306	43%	21%	41%	61%	19%	39%
0007-0306'	0307-0406	33%	10%	46%	36%	8%	48%
0107-0406'	0407-0506	42%	36%	44%	40%	24%	50%
Full History		35%	31%	42%	45%	27%	51%

Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, as of 6/30/05.

do either. This naturally prompts some suspicions about the results. Could they be an artifact of the data, or a fluke, or reflect an incorrectly specified or incomplete factor model?

We address these possible objections in turn.

The residual returns are not really alpha, but rather "alternative beta" returns. The factor model we use to separate systematic and factor-based returns from residual returns is based on a limited number of well-known (easily traded) market exposures. It is sometimes argued that hedge funds also provide access to esoteric, hard-to trade, "alternative" betas (or "recipe-based returns"—see Waring and Siegel [2006]). We have built more extensive models using asymmetric market exposures, volatility, and "recipe-based" factors, without materially affecting the conclusions of our research (i.e., the alphas remain significant and persistent through time).

In addition, it would be difficult to argue that hedge fund managers who have no discernible talent in extracting a risk premium from the traditional market-directional factors systematically add value through non-traditional beta exposures.

The sample is biased. While survivorship, instant history, and self-reporting biases are well known to inflate hedge fund returns, we argue that the size of the fund of hedge fund alphas cannot be fully explained by these biases, especially because:

- Fund of hedge fund data are much less prone to survivorship bias than individual hedge funds. In addition, the alphas persist beyond the 1990s (when most database providers had become quite diligent in maintaining the records of the funds that disappeared).
- Instant history bias is not a material factor in fund of hedge fund alphas. The results are virtually unchanged when we eliminate the first two years of individual fund histories.
- Self-reporting bias is a factor only for funds that invest mainly in illiquid and hard-to-price instruments and thus would not have a significant impact on fund of hedge fund returns.

The average alpha must be zero. The generation of alpha is, by definition, a zero-sum game. Since alpha is nothing but relative outperformance, it can be generated only at the expense of another group of investors. It is easily argued that the unconstrained investment environment and the high fees associated with long-short investing act as a magnet for above-average investment talent (as well as some crooks and charlatans). The fact that these hedge fund alphas are generated with relatively low risk (or high information ratios) supports the argument that skilled hedge fund managers can deliver more persistent value-added than their long-only counterparts. In principle, therefore, the entire hedge fund community could generate alpha at the expense of the rest of the world.

In this context, it is important to keep the relative size of the industry in mind: As of March 31, 2006, hedge funds managed roughly $1.3 trillion, compared with the market capitalization of the MSCI Global Capital Markets Index of $44 trillion.[12] The net asset value of equity-related hedge funds (typically with low leverage) represents less than 3% of the total market capitalization of the global equity markets ($725 billion versus $25 trillion). Similarly, fixed-income-related hedge funds manage less than 2% of the market capitalization of (liquid) global bond markets ($325 billion out of $20 trillion). Even allowing for the leverage that is embedded in hedge fund strategies, hedge fund investors can in no way be classified as the dominant investor in any asset class. It therefore does not follow that the average alpha for the hedge fund industry as a whole needs to be zero.

These persistence numbers are too good to be true. We know that top-quartile, long-only, manager outperformance is not persistent (and statistically insignificant). The persistence probabilities for funds of hedge funds are at odds with those in the long-only world. Yet skillful long-short managers will always deliver better risk-adjusted returns than long-only managers. As their results are less affected by the vagaries of the market, we expect their superiority to shine through more clearly. In general, persistence will be better, the higher the proportion of "skilled" players in the universe (if 5 of 100 investors were sufficiently skillful to end up consistently in the top quartile, the top-quartile transition probability would be roughly 40%).

The transition probabilities we observe in Exhibit 17 require roughly 8 of 100 funds of hedge funds to deliver top-quartile value-added consistently. It is not unrealistic to assume such a small but significant proportion of skillful fund of hedge fund managers.

Monte Carlo simulations also show that the transition probabilities are insensitive to attrition rates in the universe, so that we can confidently dismiss survivorship bias as the artifact that manufactures the persistence we observe.

Although some of these possible objections may mitigate the evidence of our analysis, it is unlikely that they destroy their statistical significance. We feel that funds of hedge funds—properly constructed—can make a reasonable claim to deliver higher-quality alpha than is typically found in the long-only world.

INSIGHTS

Funds of hedge funds, on average, have managed to deliver consistent alpha with low volatility (i.e., high information ratio returns). Unfortunately, these alphas have come mixed with significant (simple) common factor risks. Even worse, these common factor risks have not been rewarded over the last 12 years. This is probably because the common factor exposures are incidental to the portfolio construction process, rather than actively managed. (And if they were actively managed, the fund of hedge funds industry has not shown any ability to time the factors accurately.)

We conjecture that the significant presence of common factor exposures naturally follows from the top-down approach that most funds of hedge funds apply. Portfolio construction starts with an allocation across broad hedge fund styles (equity long-short, fixed-income, relative value, macro), and at least implicitly recognizes that each style is characterized by a set of common factors (that define the style). The process then targets the capture of these common factors.

The selection of the better managers within each style typically follows after the style allocation. Funds of hedge funds thus give priority to common factors over alpha in their portfolio design and—probably unwittingly—implement a process that focuses more on beta capture than alpha selection.

Funds of hedge funds, on average, deliver a valuable product. They could do better if they were to focus exclusively on alpha generation, by consciously minimizing the common factor risks in their portfolios.

It is encouraging that the better (historic) alpha producers typically continue to deliver above-average alphas in the future (especially on a risk-adjusted basis). At the same time, the simple excess return persistence numbers are relatively weak. Identification of the better (alpha-producing) funds of hedge funds therefore requires the disentangling of factor- and skill-based returns, as well as a proper focus on the inherent risks.

While fund of hedge fund track records are more valuable than records of long-only (and single-strategy hedge fund) managers, a naive reliance on the historical (total) returns will not identify the better alpha generators. Only a detailed risk and return attribution, combined with a bias toward the younger, larger funds that charge lower management fees and higher performance fees (over a hurdle rate), will guide potential investors toward the funds of hedge funds that can justify their existence.

APPENDIX A

Simple Factor Model: Fund of Hedge Fund Returns and Return to the S&P 500

Using an eight-factor model, we have illustrated that the typical fund of hedge funds takes on significant common factor risks but that, on average, these factor risks are not rewarded. We can illustrate the same point in a single-factor setting.

In Exhibit A we regress the monthly excess return for the median fund of hedge funds on the return to the S&P 500, parsed into positive and negative returns. It turns out that exposure to the S&P 500 is significantly greater in the months the market goes down. When we break down the excess return into the (eight factor-based) common factor returns and the specific return, we find—not surprisingly—that the common factors are entirely responsible for this differential exposure in up and down markets.

Also note that the S&P 500 explains more than 25% of the time series variability of the median fund of hedge funds return. Conversely, about 35% of the common factor return variability can be related to U.S. equity risk as captured by the S&P 500.

APPENDIX B

Transition Probabilities of Bottom-Quartile Funds of Hedge Funds

Exhibit B summarizes the transition probabilities for the bottom-quartile funds of hedge funds. These probabilities are as remarkable as those for the top-quartile funds. They are of the same magnitude and show the same consistency through time. Not only do winners repeat, but losers also repeat (and again, more so on a risk-adjusted basis).

This fact can be seen as at least partial confirmation that survivorship bias does not materially affect our results. Underperforming funds of hedge funds continue to underperform but are not eliminated from the universe because even the poor performers continue to deliver healthy (but below-par) alphas and information ratios.

It would therefore be fair to conclude that—as long as the universe largely consists of skillful managers—it is possible to differentiate between the more and the less skilled on the basis of historical (risk-adjusted) returns. Conversely, if there are only a few skillful managers within a large universe of random players, the transition probabilities will not show any persistence because the top quartile will be populated largely by players who achieved their above-average results through pure luck.

EXHIBIT A

Median Fund of Hedge Fund Returns and S&P 500 Return In Up and Down Markets (t-statistics in parentheses)

	Number of months	R^2	Adjusted R^2	Intercept	S&P 500 up	S&P 500 down	Up down difference
Excess return	149	26.10%	25.09%	0.61 (4.42)	0.07 (1.56)	0.19 (5.53)	-0.12 (-1.94)
Common factor return	149	35.02%	34.13%	0.18 (1.61)	0.05 (1.45)	0.20 (7.13)	-0.15 (-2.85)
Specific return	149	0.27%	-1.10%	0.43 (5.25)	0.01 (0.59)	-0.01 (-0.45)	0.02 (0.62)

Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, 1994–2005.

EXHIBIT B

Transition Probabilities of Bottom-Quartile Funds of Hedge Funds (July 1993-June 2005)

Period		Excess return	Common factor return	Specific return	Sharpe ratio	Common factor ratio	Information ratio
9307-9606	9607-9706	32%	41%	45%	32%	55%	45%
9407-9706	9707-9806	39%	39%	42%	45%	42%	48%
9507-9806	9807-9906	35%	33%	40%	28%	45%	45%
9607-9906	9907-0006	22%	35%	39%	22%	46%	48%
9707-0006	0007-0106	18%	27%	42%	29%	6%	48%
9807-0106	0107-0206	32%	37%	33%	37%	33%	44%
9907-0206	0207-0306	40%	46%	36%	42%	13%	36%
0007-0306'	0307-0406	22%	3%	38%	25%	8%	40%
0107-0406'	0407-0506	30%	20%	34%	29%	29%	39%
Full history		30%	31%	39%	32%	31%	44%

Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, MSCI and BGI, as of 6/30/05.

ENDNOTES

[1]Hedge fund clients typically have less tolerance for underperformance than long-only investors, but hedge fund strategies are mostly run at higher risk levels. The business risk associated with hedge fund assets under management is therefore higher. This—combined with the higher fees—naturally leads managers to channel their best ideas into long-short strategies.

[2]The attrition rate in the fund of hedge funds universe over the last 15 years was about half that of individual hedge funds.

[3]Sources: Hedge Fund Research, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge, and MSCI, as of 12/31/05.

[4]While some of this difference can be accounted for by the differential survivorship bias in single hedge funds versus funds of hedge funds, the discrepancy is probably too great to be completely explained away by it. Liang [2004] calculates the performance difference between funds of hedge funds and individual hedge funds attributable to the differential survivorship bias in both universes to be around 1% per year. So, even allowing for survivorship bias, the typical fund of hedge funds underperforms the average hedge fund by several percentage points per year.

[5]Unlike the results henceforth, the individual hedge fund data in Exhibit 4 are derived from the HFR database only. All other data are based on the

combined HFR, HedgeFund.Net, Lipper TASS, CISDM, Eurekahedge and MSCI databases.

[6]The Sharpe ratio is a fund's (annualized) excess return in a given month, divided by the historic standard deviation of its monthly excess returns. Note that none of the database providers maintains a historical record of the fees charged by the various hedge funds. We therefore assume that the current fee structure applies over the entire history.

[7]When we repeat the analysis of Exhibit 5 using the information ratio as the dependent variable, the same insights apply (with the same level of significance).

[8]Casual observation reveals that the typical fund of hedge funds holds at least 35 individual hedge funds.

[9]The list of factors reflects a broad cross-section of market exposures. The objective is not to find the optimal set of factors that would explain the highest proportion of fund of hedge fund risks, but to evaluate the prevalence of a restricted list of well-known factors. These factors have the added advantage that exposure to them can be bought cheaply through futures, swaps, index funds, or exchange-traded funds.

[10]Technically it is not strictly correct to label the non-factor-related returns as alphas; we have not exhaustively separated all possible systematic factor exposures from the fund of hedge fund returns. It is therefore conceivable that there are still some market factors embedded in these alphas. A more elaborate factor modeling of fund of hedge fund returns—using all conceivable factors that have been mentioned in the academic literature—increases the average adjusted R-squared by about 10%, but it does not materially affect our insights. We thus report only the analysis based on the simple factor model.

[11]Appendix A reports a simple version of this factor exposure analysis that uses the S&P 500 return as the sole explanatory variable for fund of hedge fund returns. It shows that the typical fund has a significantly higher beta in the months when the S&P 500 has a negative return.

[12]The MSCI Global Capital Markets Index captures the liquid segments of the global equity and fixed-income markets but excludes commodities, real estate, and other real assets.

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