
 December 2002

NewRiver

Neal M. Epstein, CFA
 Neil O. Brown, CFA
 Darlene DeRemer

Putnam Lovell NBF

Joseph R. Hershberger
 Donald H. Putnam

Institutional or Institutionalized - Are Hedge Funds Crazy?

- The hedge fund industry is becoming more “institutional”:
 - successful hedge funds and funds of hedge funds (FoHF) are becoming established,
 - institutional investors are ready to allocate to absolute return strategies, and
 - institutions employing a full line of products are gearing up to distribute hedge-fund based products to all their clients – sophisticated as well as mass market.

Still, many traditional investors find hedge funds wild and woolly, and wonder if they are crazy or in the grip of the latest fad.

- We expect hedge fund assets to hit \$2 trillion by 2010 on the back of middling returns of 9%. Underperformance of traditional managers helps drive the inflows, but more important is the erosion of the barriers to entry for supposedly “benchmark” investors. Despite the complexities and grim surprises, absolute return strategies with asymmetric fees should more and more be seen as profoundly in the interests of investors.
- With more investors will come more scrutiny, forcing transparency and coherence on the reclusive, secretive hedge fund world. This is vital to “institutionalizing” the quest for absolute return – a key regulatory thesis is that disclosure facilitates consistent performance, and risk measurement brings lower risk.
- Who will dominate the industry? We nominate those that rigorously control process and risk – they will attract the most sophisticated intermediaries, and in turn the largest share of assets – and those that source new talent for new products to ruthlessly replace tired strategies and personnel. It ain’t pretty and often it will not be fun, but absolute returns are enhanced by absolute Darwinism: the “sell discipline” is replaced by the “kill discipline.”

This paper was jointly prepared by Putnam Lovell NBF and New River.



Acknowledgements

We gratefully acknowledge the following individuals who shared their industry insights with us:

John Amboian, President, Nuveen Investments

Steve Eckenberger, Senior Managing Director -AltVantageGroup, John A. Levin & Co., Inc.

Joe Goldsmith, Partner, Managing Director, Prince Goldsmith

George Keane, Chairman Emeritus of the Common Fund

Bruce Lipnick, President and CEO, Asset Alliance Corporation

Chris McNickle, Managing Director, Greenwich Associates

Marylin Prince, Partner, Managing Director, Prince Goldsmith

Craig Russell, Vice President, Deutsche Bank

Bill Turchyn, Former Chairman of ING Furman Selz Capital Management

Others who provided helpful comments chose to remain anonymous. Any errors of fact or analysis are our own.

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Executive Summary

This report looks at factors that both promote and impede the institutionalization of the hedge fund industry. Among our major conclusions are:

- Successful hedge funds and funds of hedge funds (FoHF) are establishing themselves as ongoing, permanent entities.
- Institutional investors, spurred by sub-par results and higher correlation among traditional-asset categories, are increasingly ready to invest in “absolute return” investment approaches.
- Large financial institutions are making the investments necessary to develop and distribute hedge-fund based products.
- Hedge funds are entering the mainstream because they introduce a compelling new money management paradigm, which fiduciaries may feel compelled to embrace.
- We project global hedge fund assets will quadruple by 2010, to \$2.0 trillion; the adoption rate will rise from 1.2% to 3.0% of global high net worth individual (HNWI) and institutional assets.
- For industry assets to reach \$2.0 trillion implies either a dramatic increase in the number of hedge funds (“replication” scenario) or growth in the average size of funds (“concentration” scenario). Concentration will become the more apparent growth mode in the years ahead.
- Concentration should occur as the industry matures because larger firms with deeper business infrastructure will be better able to meet the standards that institutional demand will impress upon the industry.
- The search for absolute returns demands skill, focus, independence, and specialization. The industry will not alter the entrepreneurial character of hedge funds, rather it will accommodate it.
- Practitioners of a given strategy may be in short supply at any time, but eager managers can be trained: the supply curve is elastic.
- An entire industry will be created out of the anticipation, identification, and measurement of hedge fund process and performance.
- The industry is embracing FoHFs, which enable an investor to diversify his/her exposure to a range of hedging styles. Registered FoHFs will permit sponsors to distribute hedge funds to a wider group of private and institutional investors.

- Financial services institutions building proprietary platforms will have an advantage, since they will own the performance and have complete transparency. They will deliver customized FoHF products with less risk, but never with **no** risk, of misrepresenting their underlying managers' strategies.

*Fool. That sir which serves and seeks for gain,
And follows but for form,
Will pack when it begins to rain,
And leave thee in the storm. (King Lear II. 4.)*

Section 1: Introduction—Form and Substance

The hedge fund industry's assumption of an institutional character, which we explore in this paper, is really the coincidence of developments on three fronts:

- Successful hedge funds and FoHFs are establishing themselves as ongoing, permanent entities. This implies these firms have matured to the extent that they have a high degree of control over their investment processes, risk management tools, and client servicing.
- Institutional investors, perhaps spurred by sub-par results and higher correlation of traditional-asset categories, are increasingly ready to include “absolute return” investment approaches within their portfolios. The sophistication and rigor that institutional investors bring to their investment process is an important catalyst for refining standards of practice that will have lasting follow-on influences for all market participants.
- Large financial institutions that serve clients with a broad range of investment services are making the investments necessary to develop and distribute hedge-fund based products to an ever wider group of wealthy and affluent – and even retail – clients.

Hedge funds are entering the mainstream because they introduce a compelling new money management paradigm, which fiduciaries will likely feel compelled to embrace. Portfolio efficiency (improved Sharpe and information ratios), a large domain of investment opportunities to exploit, providing both untapped sources of alpha generation and portfolio diversification, and asymmetric fee structures will become more compelling as hedge funds become standardized and palatable for broader consumption by institutional investors.

For institutional investors, who constitute a large potential source of demand for hedge fund products, absolute return approaches to money management call for a number of adjustments in approach. For hedge fund managers and providers of hedge fund products, the supply side of the market, institutional investor requirements set high standards for process and compliance. Becoming institutional entails coordinating the demand for and supply of hedge funds, and in the process, defining standards that enable the two sides of the market to meet at a greater scale of activity.

To gain the trust of institutional investors, hedge funds must demonstrate their substance quantitatively and with the bona fides of their managers. High fees will

inevitably attract fund managers with poorly established and executed strategies, potentially leaving their investors “in the storm”. Even well-founded funds can produce outsized losses. Becoming institutional is synonymous with imposing means to identify and control risk. The alternative for practitioners and investors is “institutionalization.”

Our goal in this paper is to present a practical vision of the hedge fund industry’s future and to show how it will surmount obstacles to growth. It is our belief that the industry has the potential to quadruple by the end of the decade, implying average growth of 17% per annum, to \$2 trillion. How will this happen? To be addressed are profound cultural differences between traditional and absolute return investors, pragmatic questions of scalability, and regulatory hurdles. We expect this paper will be of interest to all parties who are contemplating an investment in this rapidly growing area, whether in the business development sense or in the money management sense. As such this paper is meant to provide a map of the future drawn to a large scale.

Global Hedge Fund Assets and Institutional Demand

Institutional investors have been underrepresented in this market, but we foresee them becoming significant users of hedge fund products. The global hedge fund industry currently controls approximately \$500 billion of assets, mostly in private accounts for high net worth individuals. This constitutes only a small fraction of the estimated \$45 trillion in global corporate and government pension, foundation and endowment, and high net worth monies. Indeed, the global amounts under management in hedge funds are easily dwarfed by the assets of any one of the largest traditional asset management firms (e.g. Fidelity, AXA). In the United States it is estimated approximately 8% of institutional assets have been allocated to alternative investments of any stripe, including venture capital, private equity, etc. and of that, less than 1% of institutional assets have been allocated to hedge funds. Of that 1% amount, 80% has come from foundations and endowments.

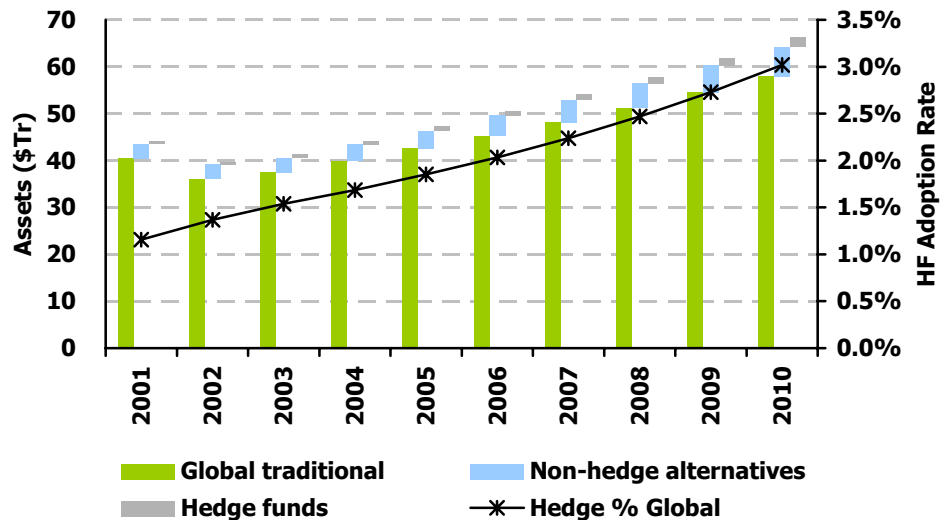
Exhibit 1: Total U.S. Pension, Foundation, and Endowment Asset Mix

(\$ in billions)

	2001	% AUM
Active common stocks	\$1,459	25.2%
Passive common stocks	1,114	19.2%
Company's own securities	295	5.1%
<i>Total domestic stocks</i>	<i>\$2,868</i>	<i>49.5%</i>
Active international stocks	\$456	8.9%
Passive international stocks	127	2.2%
International stocks -- DC plans	68	1.2%
<i>Total international stocks</i>	<i>\$651</i>	<i>11.2%</i>
Fixed income	\$1,526	26.3%
Equity real estate	174	3.0%
GICs & Stable value	180	3.1%
Private Equity	174	3.0%
Hedge Funds	34	0.6%
Other*	189	3.3%
Grand Total	\$5,796	100.0%

Note: Projected to the Greenwich Associates universe.
Source: Greenwich Associates

Exhibit 2: Global Institutional and HNWI Assets and Hedge Fund Adoption Curve



Source: Bernstein, OECD, Freeman & Company, Goldman/Russell, Nelsons, Greenwich Associates, NewRiver estimates

We project global hedge fund assets will nearly quadruple by 2010, to \$2.0 trillion, rising from an adoption rate of 1.2% to 3.0% of global HNWI and institutional assets. The implied compound growth rate over this interval is 16.4%, slower than the 21% asset growth of the past five years. We assume that hedge funds will yield 0% in 2002, and 9% thereafter. We also project that hedge fund net inflows in 2002 will equal the TASS database rate of inflow in the first half of 2002, annualized, or 7.8% of assets at the year's start. We then project the rate of inflow will increase steadily 2.5% a year to 9.4% of beginning year assets in 2010. Cumulative inflow through 2010 would be nearly \$800 billion.

We estimate global HNWI and institutional assets were approximately \$44 trillion in 2001. Global HNWI assets were \$26.2 trillion, according to Merrill Lynch's World Wealth Report. All U.S. institutional assets were \$11.9 trillion, and we estimate the balance of global institutional assets were \$6 trillion. In calculating the global hedge fund adoption rate, we assumed that global HNWI and institutional assets would decline 10% in 2002, would rise 4% in 2003, and then 7% thereafter. Our alternative asset projection is based on an 8% allocation which rises to 13% in 2010. Viewed top-down, our projection of hedge fund assets increases from 14% of alternative assets to 24% in 2010.

Of the \$1.5 trillion increase in global hedge fund assets by year-end 2010, we estimate \$800 billion – consisting of market appreciation and new money – will be from HNWIs, doubling their allocation from 1.5% to 3.0% of their projected assets. U.S. endowment and foundation allocations should grow by \$150 billion, reaching 15% of assets. Corporate and state pension fund allocations should quadruple, reaching 6%, which

would increase their hedge fund assets by \$450 billion. The rest should be from global institutions. Inflows to hedge funds could be split evenly between HNWI and institutions over the decade, with each sector investing \$400 billion.

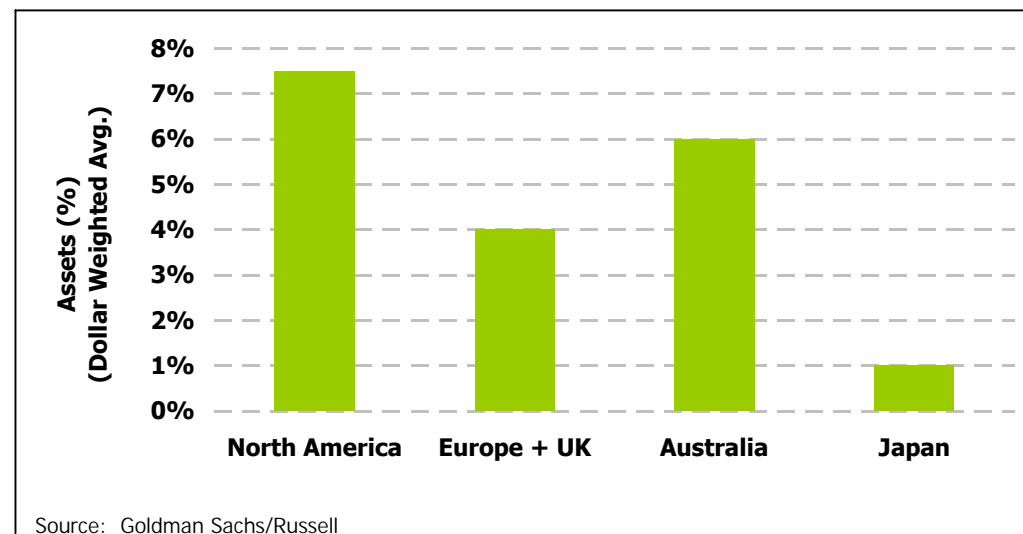
Exhibit 3: Global Hedge Fund Asset Increase, 2001 – 2010 Projection

(\$ in billions)

Sector	2001			2010			Change in Allocation from 2001
	Global AUM	HF Alloc	HF AUM	Global AUM	HF Alloc	HF AUM	
HNW Individual	26,200	1.5%	393	39,379	3.1%	1,235	2 times
Endowment	383	4.5%	17	576	15.0%	86	3+ times
Foundation	438	4.5%	20	658	15.0%	99	3+ times
Corporate	3,146	1.5%	47	4,728	6.0%	284	4 times
Public	2,697	1.5%	40	4,054	6.0%	243	4 times
Life Insurance	3,850	0.1%	4	5,787	0.2%	12	2 times
Other Insurance	1,000	0.1%	1	1,503	0.2%	3	2 times
Taft Hartley	354	0.0%	-	532	0.2%	1	n/a
Intl. Institutional	6,000	0.2%	12	9,018	0.8%	72	4 times
Totals	44,068	1.2%	534	66,235	3.1%	2,034	

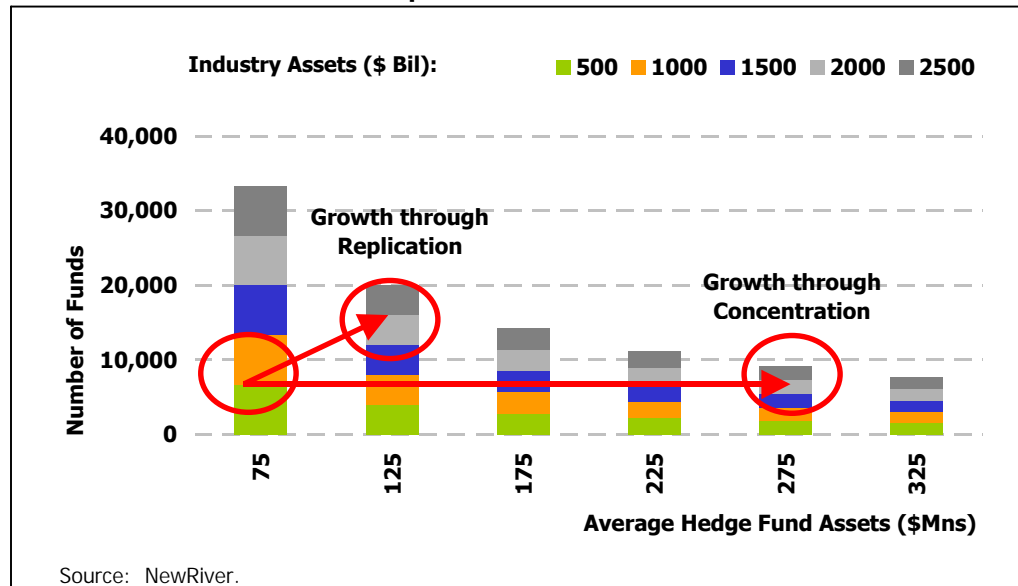
Source: NewRiver

Exhibit 4: Defined Benefit Plan Allocations to Alternative Investments, 2001



What would be the implications of stretching the industry four-fold in eight years? For starters, given that most hedge funds are relatively small, under \$100 million, either the number of entities would have to grow considerably, or hedge funds would have to increase their capacity. In other words, the industry could grow through replication or concentration. To reach \$2.0 trillion assuming growth in average fund size equivalent to projected asset appreciation, to \$125 million, implies replication to 16,000 funds from the current level of 6,000; alternatively, holding the number of funds constant implies concentrating the industry average fund size to \$275 million from the current average of \$75 million to \$85 million.

Exhibit 5: Growth Scenarios: Replication or Concentration



While it is useful to set forth the algebraic limits, it is also somewhat misleading. Both replication and concentration are likely to occur, and indeed occur simultaneously. What needs to be considered are the sequence and timing, and the response of existing industry players to the change. We know the industry is already growing by replication, but eventually this phase will be followed by a consolidation. The drivers of replication are the following:

- FoHFs, the rapidly growing distribution point for new assets in hedge funds, are under constant pressure to identify superior new managers.
- Access to the “desirable” existing funds – those with a known record of success – is closely controlled by independent managers who, by the logic of performance-fee arithmetic, close their funds when additional capital threatens near-term opportunity.

- Just as performance fees induce successful managers to limit fund size, newcomers are seduced by the hope of attaining the veterans' success.
- Prime brokers and incubators offer access to capital and infrastructure for promising talent who want to give it a go.
- Along with the FoHFs, large distributors, such as Deutsche Asset Management, have begun to assemble integrated programs of manager identification, portfolio construction, and monitoring and reporting services.
- The demand for hedge fund products has caused an outflow of personnel from mutual fund companies, which have responded in turn by creating internally managed hedge funds, to both retain talent and get in on the action.

For now, the growing need to add capacity should continue to call into existence new funds. However, some of this will be marginal in capability, short-lived efforts on the part of optimistic wannabes. Already, we hear anecdotally that no more than a third of hedge fund managers are potentially attractive to FoHF providers, and presumably far fewer for direct investment from institutional investors.

Concentration should occur as the industry matures because larger firms with deeper business infrastructure will be better able to meet the standards that institutional demand will impress upon the industry. As they become engaged with the hedge fund universe, we expect institutional investors will seek out key features of the system that has evolved around traditional money management. As a result, hedge funds will be faced with the challenges of providing:

- A well understood, consistently implemented (and communicated) investment process.
- Portfolio – or at least process – transparency, providing the basis for both absolute and relative performance and risk measurement.
- Mastery of the regulatory compliance necessary to issue registered products.
- Communication with consultants engaged to ensure fiduciary due diligence.
- Interaction with third parties such as administrators and custodians, who provide portfolio information and reporting, asset oversight, compliance checks, and portfolio measurement tools.

Size will matter to institutional investors undertaking their due diligence. Only larger hedge fund managers will be able and willing to assume the role of fiduciary to pension and retirement funds. To the extent that larger firms offer multi-strategy approaches, size will also confer stability. Not only will internal diversification enable them to weather the swings of performance among hedge fund strategies, multi-strategy firms

will have built deeper business infrastructure. New regulatory issues are also likely to become a factor in creating more capable hedge fund organizations. For example, the Treasury Department has moved to require hedge funds to maintain anti-money-laundering records, but reportedly fewer than ten per cent of one sample of hedge funds were prepared to comply with the proposals.

Change Along Familiar Lines

We are not describing a novel progression. Rapid transformations within the world of investments have taken place before, following a series of now familiar evolutionary steps. In the case of hedge funds, we are at home comparing their development to other investment areas where intellectual capital — as opposed to institutional capital — is paramount. Historically, small cap, international equities, venture capital, LBOs, and REITs emerged as the specialized practice of experts who departed from larger institutional homes to build their better mousetraps. These areas first flourished independently of large institutions, unlike innovations such as securitization or indexation, which required huge balance sheets and high thresholds of technology to assemble the necessary capabilities.

When a new asset class has desirable investment characteristics, it typically presents cultural or “paradigmatic” hurdles to widespread acceptance, engendering debates about validity, practicality, and fiduciary tolerances for risk and uncertainty. In turn these debates bring about industry coherence, as a wider group of investors, policy setters, and regulators demand greater understanding of performance and risk attributes. Once performance and risk is better understood, and standards of measurement are established, institutions are prepared to refine product design, bundling and unbundling features for the myriad segments and submarkets that exist within the broad investor community, both institutional and retail.

Exhibit 6: The Path to Institutionalization I: Sequence of Phases


Phase	Event	Outcome
Spin-out	Entrepreneurial departure	Better mousetrap
Coherence	Paradigm shift/Product innovation	Better measurement
Reintegration	Product bundling	Better manufacturing
Mature	Relationship Intermediation	80% Institutional, 20% Independent

Source: NewRiver

Exhibit 7: The Path to Institutionalization II: Industry Metamorphosis

Industry Feature	Phase		
	Spin-out	Coherence	Reintegration
Product complexity	Low	Moderate	High
Clients	Early adopters	Low-Barrier Markets	All
Relationship Management	Ad Hoc	Functional	Intermediated
Consultants	Rare	Specialists	Generalists
Risk Management	None	Some	Complete
Infrastructure	Ad hoc	Fragmented	Integrated

Source: NewRiver



The new industry matures as it becomes “reintermediated” by big institutions which absorb a large fraction of the creative activities originally defined and differentiated by entrepreneurs, providing them with capital strength and distribution support. However, some managers will retain their independence, functioning at a larger scale by demonstrating sufficient adaptability and business acumen to manage a range of strategies while mastering the ability to control and communicate their investment process directly to individual clients. These firms, which assume an elite role within the industry, may forego intermediaries.

This evolutionary process is rapidly progressing in the hedge fund industry. The ability of hedge funds to attract significant institutional investors strongly indicates they are becoming a “coherent” asset class. CalPERS, one of the largest institutional investors, has undertaken a methodical process in partnership with Blackstone Group and made eight direct investments to date, and authorized nine investments totaling \$440 million. Global financial institutions’ investment in hedge fund products and distribution constitutes the leading edge of “reintegration” of the sector into the institutional world.

Exhibit 8: CalPERS Hedge Fund Program: Proposals in Process and Funding

	2001	July '02 YTD	Since Program Inception
Manager Activity			
Information Received	88	118	206
Rejections Recommended	34	52	86
Managers for Further Review	48	61	109
Due Diligence Reviews	0	11	11
IC Approved	0	9	9
Manager Amounts			
Authorized	\$0	\$440	\$440
Initial Funding	\$0	\$303	\$303
Investments			
Fund	Initial	Follow-on	Authorization
Andor Capital Management	\$10	\$40	\$50
Apex Capital, LLC (Zaxis partners, LP)	17.5	0	50
Atticus Capital Management	10	30	50
Brookside Capital Partners	50	0	50
Evnine-Vaughan Associates	10	30	50
Farillon Capital Management	0	0	50
Liberty Square Asset Management	10	15	40
Symphony Asset Management	10	20	50
Tosca Fund Limited	10	40	50
Total	\$128	\$175	\$440

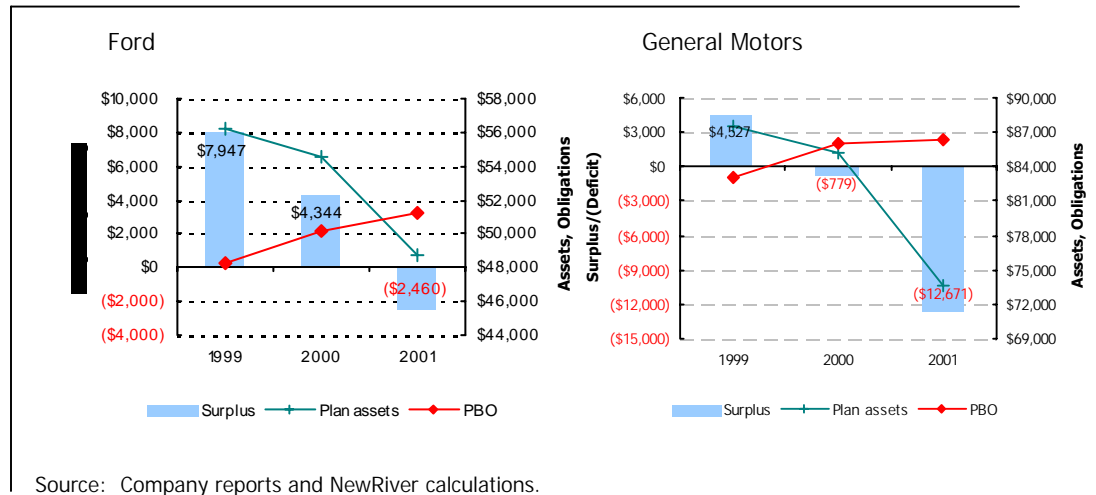
Source: CalPERS (<http://www.calpers.ca.gov>), HedgeWorld, and NewRiver calculations

Kulturkampf

Institutions have begun to dip their toes in the hedge fund waters, but the current bear market in global equities and the collapse of real current returns has without a doubt provoked institutions to reconsider fundamental asset allocation concepts. Declining asset bases have pushed some corporate plans into under-funded status with respect to their actuarial obligations. As a result, institutions have become sensitized to the generation of absolute return, as opposed to benchmark-relative returns.

Exhibit 9: Global Corporate Pension Plan Funding Status Has Deteriorated

(Dollars in millions.)



Despite these motivations, institutional demand must cross the cultural divide between the buttoned-up, highly structured institutional paradigm and the unorthodox (as it is perceived) world of hedge fund management. An entire generation of fiduciaries and their consultants has been schooled in the efficient market hypothesis, leading them to believe that style allocation, rather than security selection, is the key to generating mean-variance optimized returns. In that framework, there is no “excess” to justify performance fees. Rather, asset-based fees are paid to “steward” the assets within a style constraint. Risk is spread across styles: hedging occurs by employing a wider set of uncorrelated benchmarks.

In contrast, in the world of absolute return management, positions are taken on the presumption that there are transient pricing opportunities to be capitalized on, and the technology and skill exists to extract them. Performance fees explicitly acknowledge that returns can be extracted from insights into a market’s pricing mechanisms. They incentivize a manager to produce the greatest return with the smallest amounts of capital under management to protect the validity and optimize the value of his/her insights. Hedging is intrinsic to strategy, allowing absolute-return managers to “tune” the risk they shoulder with leverage policies.

The question then, is how the demand and the supply sides develop a market in which the product sets fit the needs of institutional buyers — their investment processes and fiduciary concerns — without smothering the native dynamic of absolute return managers. The vehicles that manage absolute return strategies, and the intermediaries that support them, will need to produce solutions that make the market possible, including solutions in the following areas:

- Effective risk management tools
- Scalable products and product packaging
- Desirable structures providing risk intermediation
- Optimized ownership structures and incentives
- Well-developed financing functions
- Productive technology infrastructure solutions

Industry infrastructure must arise to mediate between the fiduciaries that direct pension funds and fund managers. Already FoHFs are becoming prominent players. In addition, fund administrators, consultants, prime brokers, and performance analysis services will adapt with more active and well developed capabilities to serve a larger scale of participation in the industry. Fund managers who are willing to work within new structures should be able to gather significant amounts of money from the pension side.

Despite these developments, the hedge fund industry retains an entrepreneurial character, as many new funds are being created by independent practitioners who seek capital to manage. There is a gold-rush fervor behind the efforts of the emerging institutional leadership, whether in traditional financial institutions or on the part of the new cadre of FoHF managers, to identify — and lock-up — new entrants.

We believe the following industry characteristics should endure through the process of institutionalization:

- Absolute return approaches to the management of money can produce returns uncorrelated to “traditional” benchmarks, with expected lower risk, and so they will be embraced in institutional portfolios.
- The search for absolute returns demands skill, focus, independence, and specialization. The industry will not alter the entrepreneurial character of hedge funds, rather it will accommodate it.
- The potential to find exploitable strategies is virtually unlimited against the backdrop of traditional portfolio approaches. Practitioners of a given strategy may be in short supply at any time, but eager managers can be trained: the supply curve is elastic.
- Style rotations and efficient strategy substitutions threaten both managers and intermediaries. Managers may appear to flame out; intermediary risk metrics may

appear misleading. An entire industry will be created out of the anticipation, identification, and measurement of hedge fund process.

The industry is embracing FoHFs, which enable an investor to diversify his/her exposure to a range of hedging styles. FoHFs are competing at different levels of the market, and their future as a group is probably not homogenous. Registered FoHFs are emerging as a means of distributing hedge funds to a wider group of private and institutional investors. Large financial services institutions have begun to build consolidated platforms, based on their experience with high net worth clients and the perceived needs of institutional investors. These consolidated platforms, which have exceptional ability to monitor and manage risk parameters, should be attractive to institutional investors. Finally, we foresee a range of future roles for hedge funds themselves – depending on the extent to which they choose to diversify their offerings, invest in their own risk management capabilities, build stand-alone client service functions, and absorb the ERISA-mandated obligations of fiduciaries.

New developments on the retail front, and the implications of the SEC's recent moves to require registration, are beyond the scope of this paper, but they will tend to push the industry along the pathway of "reintermediation." We do not doubt, that at the end of the day, a mature industry will emerge in which "absolute return" approaches lose their "alternative" character.

Section 2: We Need the Eggs

Remember the classic Woody Allen joke at the end of *Annie Hall*?

This guy goes to a psychiatrist and says, “Doc, uh, my brother’s crazy, he thinks he’s a chicken.” And the doctor says, “Well why don’t you turn him in?” And the guy says, “I would, but I need the eggs.”

Hedge funds may appear a bit wacky to traditional investors. The worlds of institutional investors and hedge fund managers collide over issues such as the transparency and simplicity of investment processes, absolute return objectives, payment of performance fees, use of leverage and short selling, and the commingling of investors’ funds.

Many corporate pension plans are skating close to the edge, or are over the edge. GM’s expected return on pension assets, which is used to offset pension costs in calculating the pension charge on its income statement, exceeded actual returns on pension assets by \$10.6 billion over the past two years. At some point, they are going to need those eggs!

Some of the largest corporate pension plans in the U.S. are using aggressive expectations for their projected returns on assets. Only sixteen of one hundred companies in the survey referred to below lowered their expected return assumptions last year after an eighteen-month bear market in equities. Ten percent or 9.5% return assumptions appear unrealistic in the current interest rate environment (5.5% yield on the ten-year bond and 1.5% yield on cash). More broadly, the funded status of corporate and public pension plans is at a critical juncture, with many of America’s largest companies and reportedly half of public pension plans currently underfunded relative to their retirement obligations.

Exhibit 10: Domestic Pension Plan Funded Status and Expected Return on Assets

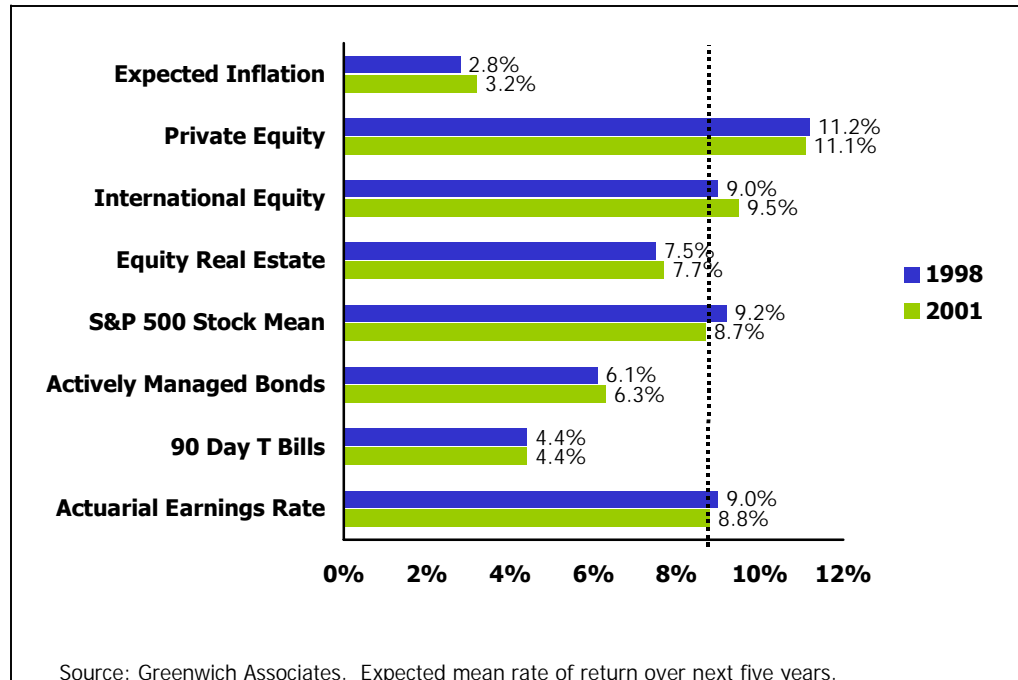
(Dollars in millions.)

	Expected return on assets	Fair Value of Plan Assets	Projected Benefit Obligation	Funded Status	Fd’d Status % of PBO
General Motors	10.0%	67,322	76,383	(9,061)	-12%
DuPont	9.5%	17,923	18,769	(846)	-5%
Daimler Chrysler	10.1%	22,655	22,688	(33)	0%
Ford Motor	9.5%	35,819	35,223	596	2%
IBM	10.0%	39,565	38,609	956	2%
Boeing	9.3%	33,810	32,693	1,117	3%
Shell Oil	7.8%	36,120	32,239	3,881	12%
General Electric	9.5%	45,006	38,423	6,583	17%

Source: Pensions and Investments, Company reports, and NewRiver calculations. As of Dec. 2001.

Compounding the problem of pension plan underfunding, a recent survey of pension executives' expected asset-class returns shows that only private equity and international equity are expected to provide results that beat their assumed actuarial earnings rates. Unfortunately, two asset classes comprise a relatively small portion of the total plan assets, mitigating the potential for meaningful impact on total plan performance results and further highlighting their need for "the eggs."

Exhibit 11: Rate of Return Assumptions for Corporate Defined Benefit Plans



The New Appreciation for Hedge Funds

We believe the bear market (and the experience of the recent bubble) is going to force institutional investors to reconsider many of the fundamental implications of modern portfolio theory:

- Efficient markets process information so rapidly that opportunity is unforeseeable, emerging randomly.
- Statistically meaningful “outperformance” versus a benchmark by a manager is exceedingly rare and hard to confirm.
- Risk is to be managed by diversifying across benchmarks and asset classes.
- Passive indexing is perhaps the most cost-effective means to do that.

- The risk and cost of using an active manager must be justified relative to the performance of a market or style benchmark.

Hedge funds force traditional investors to reconsider every one of these implications by:

- Employing arbitrage models
- Explicitly seeking absolute returns away from benchmark returns
- Demonstrating high efficiency (in the sense that returns are high relative to their standard deviation)
- Producing consistent returns with low correlation to market indices, offering the opportunity to raise the efficient frontier of traditional long portfolios.
- Producing favorable investment results despite earning performance-based fees of 20% (or more) of an investor's capital increase.

The CSFB/Tremont hedge fund indices, updated monthly, present a snapshot of mean, variance and correlation parameters. The overall index has a 0.50 correlation to the S&P 500. Its annualized total return since the end of 1993 was 10.8%, versus 8.1% for the S&P 500. Furthermore, annualized volatility (standard deviation of monthly returns) was 9.0% versus 15.5% for the S&P 500. The results suggest that substitution from the large cap equity index into the hedge fund index could improve the performance of a portfolio. Many of the strategy sub-indices, including Equity Market Neutral and Convertible Arbitrage, outperformed the S&P 500 in this way.

This result has been tested by academicians, and it generally holds up, with an important caveat. Comparisons of portfolio performance with and without hedge funds must take into account other features of their distribution of returns. For example, if performance becomes more skewed in one direction (and, in particular, in the negative direction), or it tends to bunch up at the extremes of the range of returns, overall portfolio results may not be improved. One paper found that the impact of blending randomly sampled subsets of hedge funds from the TASS database with equity and debt portfolios had just these undesirable affects.

The implication is that for investors to reap the benefits of hedge funds they need more than a clear picture of the potential returns distribution of the funds they are using, they must also undertake significant portfolio modeling or simulation exercises to adequately depict the overall risk adjusted benefits. We believe that only the larger institutional entities will be prepared to provide and interpret the necessary analytics, and deploy investor capital in the prescribed way.

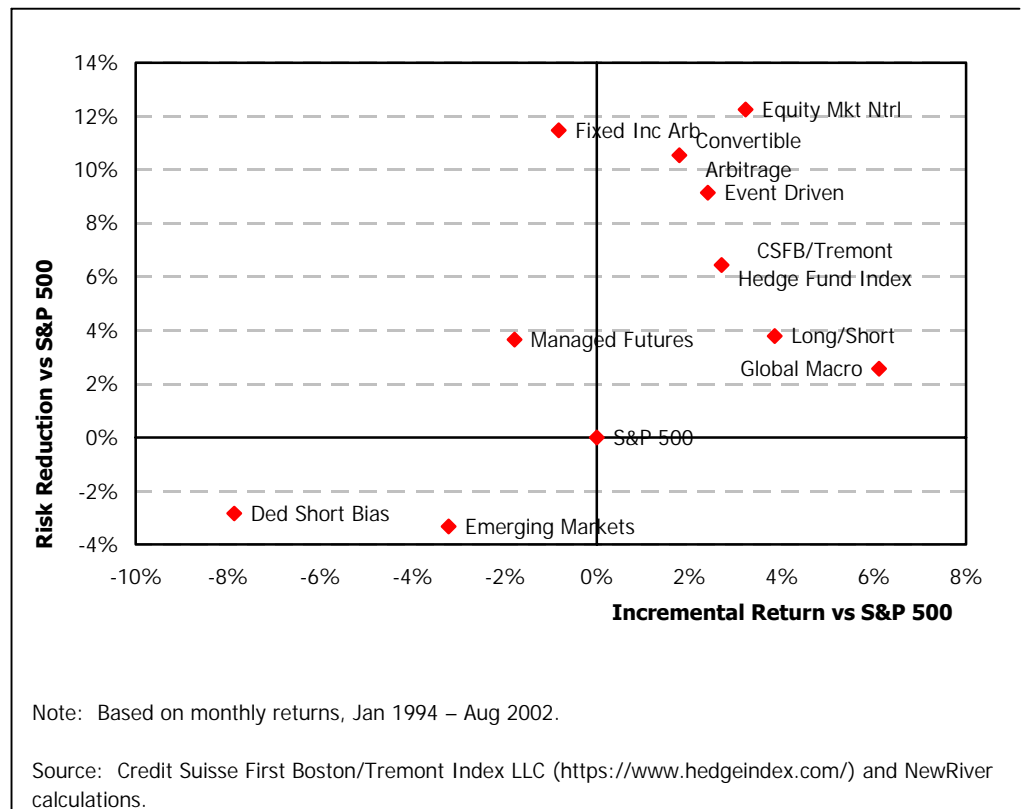
Exhibit 12: CSFB/Tremont Hedge Fund Indices, Jan. 1994 to August 2002

Fund	Total Return	Annualized Total Return	Average Month	Annualized Standard Deviation	S&P 500 Corr. Coeff.	S&P 500 Beta
CSFB/Tremont Hedge Fund Index	143.1%	10.8%	0.9%	9.0%	50.3%	0.29
Convertible Arbitrage	126.4%	9.9%	0.8%	4.9%	15.6%	0.05
Dedicated Short Bias	2.1%	0.2%	0.2%	18.3%	-76.7%	-0.91
Emerging Markets	51.2%	4.9%	0.5%	18.8%	48.2%	0.59
Equity Market Neutral	153.2%	11.3%	0.9%	3.2%	43.3%	0.09
Event Driven	137.6%	10.5%	0.9%	6.3%	58.1%	0.24
Fixed Inc Arbitrage	83.7%	7.3%	0.6%	4.0%	5.2%	0.01
Global Macro	216.5%	14.2%	1.2%	12.9%	25.0%	0.21
Long/Short	166.0%	12.0%	1.0%	11.7%	61.0%	0.46
Managed Futures	69.9%	6.3%	0.6%	11.8%	-20.2%	-0.15
S&P 500	96.4%	8.1%	0.8%	15.5%	100.0%	1.00

Note: Based on monthly returns, Jan 1994 – Aug 2002.

Source: Credit Suisse First Boston/Tremont Index LLC (<https://www.hedgeindex.com/>) and NewRiver calculations.

Exhibit 13: Hedge Fund Indices: Risk and Return Improvements Vs. the S&P 500

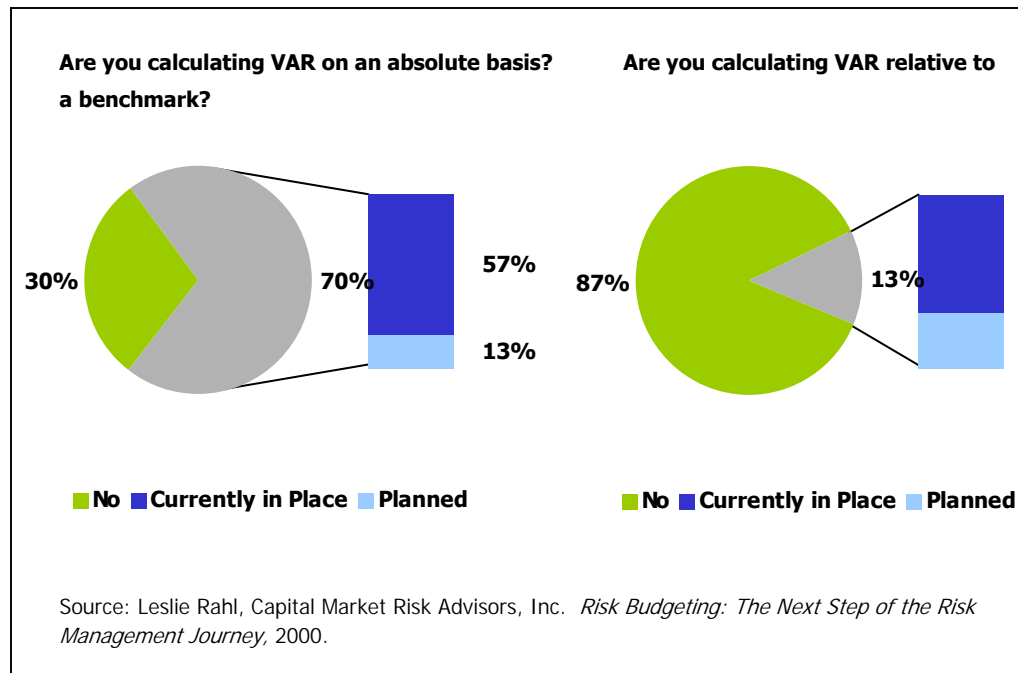


Overcoming Concerns About Risk

What has deterred institutions from using hedge funds more aggressively? One factor is the association of hedge funds with leverage, implying increased investment risk. From the perspective of a traditional institutional investor, a contradiction lies at the heart of the hedge fund. Whereas hedging per se can mitigate the risk of a position, a fund’s use of leverage amplifies its volatility. Offsetting positions are intended to both isolate the investor from correlated market movements and double the return an arbitrageur can extract from pricing insights. However they also increase potential losses and volatility, if both positions move in the opposite of the intended direction.

Risk sensitivity rises in a bear market in part because market volatility tends to increase when returns are negative. Even so, institutional concern with risk has been increasing. Two years ago a survey of hedge funds to determine their risk management practices found that 70% calculated value at risk (VaR) on an absolute basis or planned to do so, and 13% calculated VaR relative to a benchmark. Going forward, the ability to provide metrics that enable traditional investors to evaluate the impact of hedge fund products on their portfolios will increase as a competitive factor for hedge fund managers. Larger hedge funds, FoHFs, and institutional intermediaries are devoting increasing resources to the measurement and management of their portfolios’ risk attributes.

Exhibit 14: Hedge Funds’ Use of Value at Risk



Contending with Regulation

Regulation determined the traditional structure of hedge funds: private investment partnerships managed for small groups of unsolicited investors. Each of the major statutes governing the investment and securities industries has exclusions that enabled hedge funds to attract money from HNWI and provide them with limited disclosure, while using aggressive trading strategies (concentrated positions, short selling, use of derivatives, etc.) and incentive fee structures. However regulatory exceptions which enabled HNWI to invest with hedge funds may not be sufficient for retirement plans, which under ERISA have to be managed “prudently” for the benefit of plan participants. As a practical matter, ERISA limits a hedge fund from taking more than 25% of its value from any retirement sources by causing the manager to assume the role

Exhibit 15: Regulations Governing Institutional Investment in Hedge Funds

Statutory Requirements	Exceptions
<p>ERISA If fund is not a registered investment company, retirement assets managed are "plan assets" and fund manager must assume the role of an ERISA fiduciary.</p>	<p>If less than 25% of the value of a fund is held by ERISA plans, 401(k)s, IRAs, state funds or other employee funds, the manager need not comply with ERISA.</p>
<p>Internal Revenue Code Pensions, profit sharing plans, are exempt from income taxation, except for UBIT (Unrelated Business Taxable Income).</p>	<p>Pension investors will owe Federal and IRAs income tax on UBIT from hedge fund capital gains and income earned with leverage.</p>
<p>Investment Advisors Act Fund with more than 14 clients or that publicizes itself as investment advisor must register and assume reporting requirements. Registered manager may not uniformly charge performance fees.</p>	<p>Registered manager may charge incentive fees if investors' net worth is greater than \$1.5 million or individual invests at least \$750 thousand; or if investor is a "Qualified Purchaser" or offshore investor.</p>
<p>Investment Co. Act of 1940 Manager must assume reporting requirements of a mutual fund and assume limitations on investment methods and fee structures.</p>	<p><u>Private Investment Company:</u> less than 100 persons own fund. <u>Qualified Purchaser Fund:</u> Limited to "Qualified Purchasers" who are individual investors who own not less than \$5 million in investments and institutional investors which own not less than \$25 million.</p>
<p>Securities Act of 1933 Securities must be registered with the SEC prior to distribution to the public.</p>	<p>"Accredited investors" (as defined by Regulation D) may purchase unregistered securities for investment.</p>

Source: Corporate Regulatory Services

of fiduciary, which in turn exposes him or her to many potential legal liabilities. From the manager’s perspective, this makes ERISA plans relatively unwelcome clients. While the 25% provision potentially limits private plans’ use of hedge funds, state plans — such as CalPERS — are regulated under state, not federal, law, and so they may be more welcome clients to hedge fund managers. We expect the public pension funds to lead the way into hedge fund investments. All tax-exempt investors must pay taxes on “unrelated business income” accruing from gains and income earned on leveraged hedge fund investments.

Exhibit 16: Hedge Fund Products as Registered Investment Companies

Date¹ and Provider	Product	Underlying Funds	Targeted Clients	Regulatory Factors
<u>10/3/2002</u> Banc of America Capital Management	Registered Hedge Fund	Alkeon Capital Mgmt	HNWIs	Invest min = \$100 K Only available to investors with at least \$1.5 MM net worth
<u>9/23/2002</u> Deutsche Bank DB Absolute Return	Closed-end fund	15 - 40 proprietary funds	HNWIs	Registered under 1940 Investor Act and 1933 Securities Act. Invest min = \$50 K. Distributed to accredited investors.
<u>8/27/2002</u> Citigroup Alternative Investments	Registered Series of FoHFs	Directional Arbitrage Event-driven	HNWIs Institutions	Distributed to qualified investors (Reg D)
<u>6/25/2002</u> Paine Webber	Registered Hedge Fund	Credit and Recovery Fund	HNWIs	Sold privately. Won't charge incentive fee.
<u>1/17/2002</u> Bucephal Group	Principal-protected CFO	Stayer Funds, 18 Underlying Managers	Institutions	na
<u>6/27/2001</u> Lazard Asset Management	Registered private FoHF	5 - 35 funds: US and foreign equity and debt, commodities, currencies, and derivatives	HNWI	Registered under 1940 Investor Act
<u>6/19/2001</u> CIBC World Markets	Registered private investment company FoHFs		HNWIs Institutions	Registered under 1940 Investor Act Distributed to accredited investors (Reg D) IRS to treat fund as private partnership Invest min = \$150 K Only available to investors with at least \$1.5 MM net worth or \$5 MM for trusts

¹Date item appeared in Hedge World.

Source: *HedgeWorld*

As a result, retirement plans wishing to invest in hedge funds are likely to seek out larger managers, whose funds can accommodate meaningful investment without exceeding the 25% threshold. Certain hedge fund strategies will be more attractive to plan sponsors, notably arbitrage approaches, as opposed to directional approaches. Smaller, newer funds, and FoHFs that place assets with newer managers, are less likely to be the natural vehicles for pension funds, both because of capacity issues and due diligence concerns.

In response to the regulatory hurdles, large financial institutions and some hedge funds have begun to structure FoHF vehicles as closed-end registered investment companies. Depending on their distribution goals, these funds may be registered for public distribution or rely on a safe harbor for “private” distribution. The registered entities behave like traditional investments (enabling distribution to larger groups of investors), but they offer the diversification benefits of FoHFs, leaving the investment strategies and performance fee structures intact at the hedge fund level. Since ERISA plans can invest in registered companies, we expect registered FoHF products will evolve to accommodate private plan investors.

We Regret to Inform You...

...So reportedly began the October 2002 letter from the general partner of Beacon Hill Asset Management, e-mailed to investors, which disclosed a drop in two funds exceeding 50%, costing more than \$400 million. Just a week earlier the firm had warned investors the mortgage-backed funds had lost 25% during September, declining \$185 million in value. The shock was a bolt from the blue, since the funds had reported year-to-date gains of 10% through August, and other mortgage-backed funds were up 7% to 15%. The portfolios will be liquidated over the next six months and meanwhile investors will be prevented from redeeming their accounts. The SEC has filed a civil-fraud complaint against Beacon Hill.

Blow-ups of this sort are precisely what institutional investors fear from hedge funds. But the implications for the market extend beyond the limited partners, potentially disrupting the course of hedge fund institutionalization itself. Beacon Hill is one of fourteen investments held by Asset Alliance, a hedge-fund holding company that typically purchases a 50% interest in the revenues of its subsidiaries. Asset Alliance provides both marketing and support services to its investees, and it distributes multi-managed products, allocating management responsibilities among its subsidiaries.

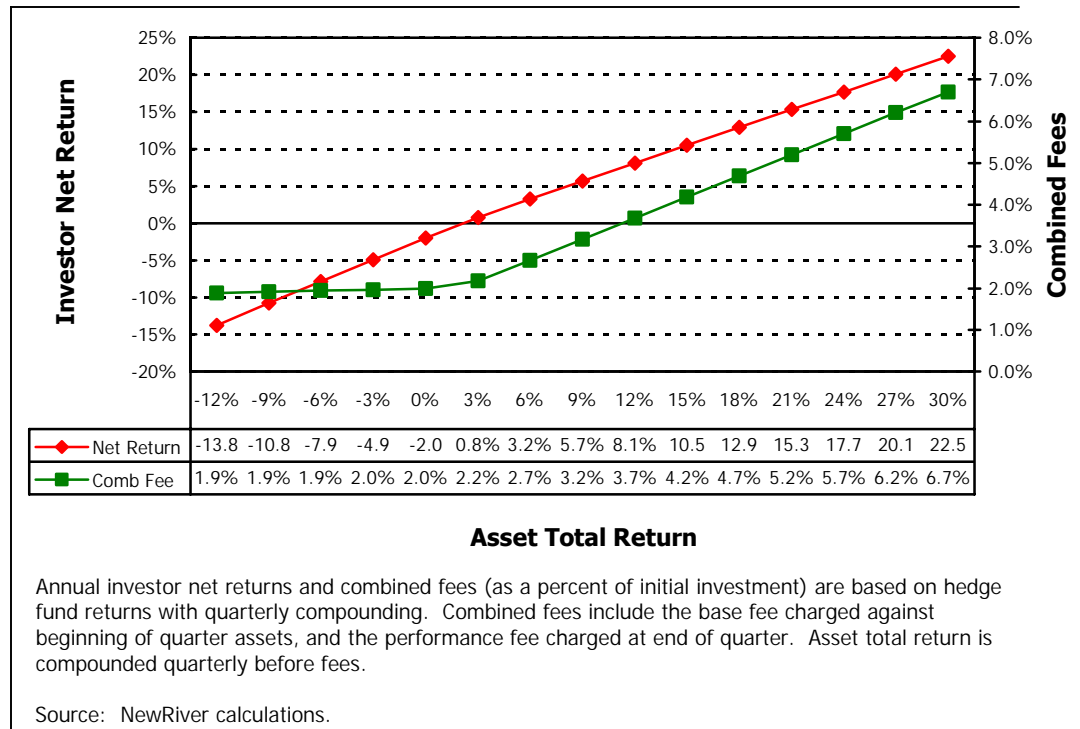
One of the premises of Asset Alliance is that it employs a proprietary asset allocation process. It is putatively in a position to offer investors a high degree of confidence in the risk characteristics of the multi-manager products it distributes. The breakdown of a “transparent” multi-managed product could lower confidence in the institutional model, designed as it is to mitigate such risks. The ramifications of a single fund’s blow up can spread further than might be first apparent:

- Not just direct investors, but investors in any multi-managed funds in which a damaged fund participates may feel the shock.
- If investors, in response, pull funds out of a multi-managed vehicle they may hurt the wider group of fund managers.
- Sources of seed capital and distribution such as Asset Alliance may be undercut in the aftermath of a blowup, disrupting the managers that rely upon them.
- Investors in an institutional parent may be hurt indirectly to the extent the institution has an ownership interest in the affected hedge fund entity, or its ability to continue its mission is impaired.

The Incentive Fee Mechanism

The common “2 & 20” base plus performance fee formula may cause some investors to blanch, but this compensation structure’s asymmetry should mirror their objectives. Institutional investors are becoming more comfortable putting what amounts to a call option on performance in the hands of the hedge fund manager. This structure aligns the hedge fund manager’s interest with pension industry preferences: to pay for success, and avoid failure. But the bar is set high: to achieve 8% net investor returns (remember those actuarial pension hurdles), the assets invested must have a total return of 12%. High base fees enable hedge funds to remain small and focused, although competition, and institutional layering, may pressure funds to charge less.

Exhibit 17: The “2 & 20” Formula: Combined Fees and Investor Returns



The absolute return objective of the hedge fund, and its direct link to compensation, compels the manager to focus on low variance, high return outcomes. Funds that experience “drawdowns” from their high-water marks may be forced – or choose – to close. For institutional investors, contemplating anew the definite hurdle of an actuarial liability structure, the hedge fund formula has begun to gather appeal. After all, they need those eggs.

Section 3: The Supply Side – a Closer Look

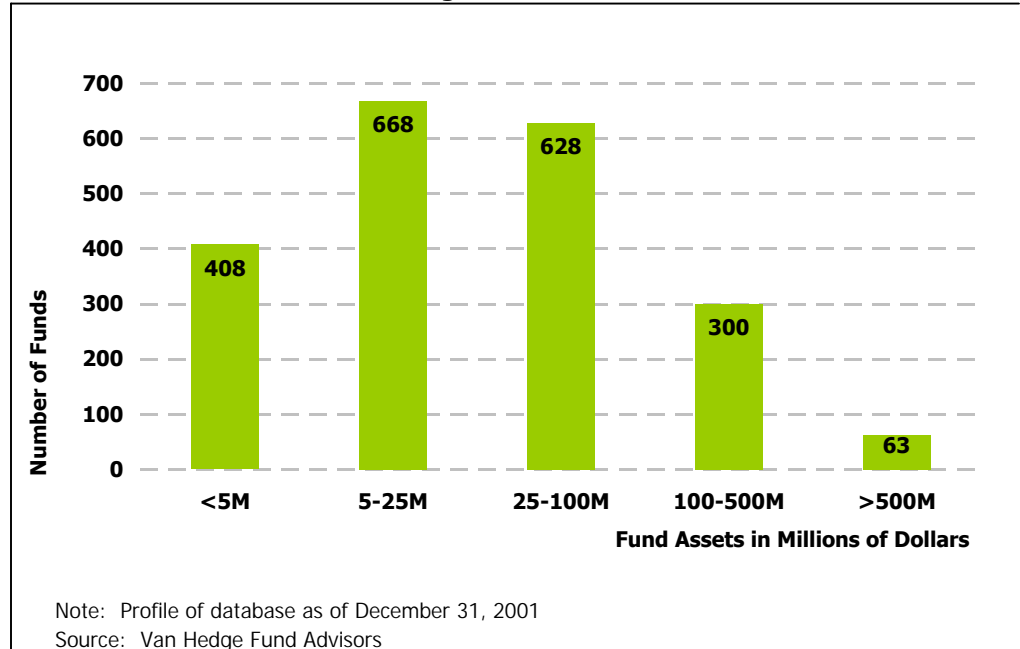
Among financial institutions hedge funds are notably small, when measured by assets, staff, and life span. However, the fact that the mean values of hedge fund characteristics are greater than other “central tendency” measures (median and mode) indicates that there are significant large outliers in terms of assets, tenure, investment minima, etc. This statistical observation suggests that institutionalization is proceeding apace. Nevertheless, the fact remains, most hedge fund entities operate on a small scale.

Exhibit 18: Hedge Fund Characteristics

<u>Characteristics</u>	Mean	Median	Mode	
Fund Size	\$87 million	\$22 million	\$10 million	
Fund Age	5.9 years	5.3 years	5.0 years	
Minimum Investment Required	\$695,000	\$250,000	\$250,000	
Number of Entry Dates	34	12	12	
Number of Exit Dates	28	4	4	
Management Fee	1.7%	1.0%	1.0%	
Performance Allocation ("Fee")	15.9%	20.0%	20.0%	
Manager's Experience:				
In Securities Industry	17 years	15 years	10 years	
In Portfolio Management	11 years	10 years	10 years	
<u>Percent responding YES</u>				
Manager is a U.S. registered investment advisor		45%		
Fund has hurdle rate		17%		
Fund has high water mark		75%		
Fund has audited financial statements or audited performance		98%		
Manager has \$500,000 or own money in fund		75%		
Fund can handle "hot issues"		53%		
Fund is diversified		57%		
Fund can short sell		84%		
Fund can use leverage		72%		
Fund uses derivatives for hedging only, or none		71%		
<u>Level of turnover</u>	Low	Medium	High	
	(0 - 25%)	(26-75%)	(>75%)	
	23%	25%	52%	
<u>Capitalization of underlying investments</u>	Mixed	Small	Medium	Large
		(\$1 - \$500M)	(\$500-\$1,000M)	(>\$1,000M)
	73%	14%	5%	8%

Source: Van Hedge Fund Advisors 2001 Manager Database Analysis

Exhibit 19: Size Distribution of Hedge Funds



A second outstanding feature of hedge funds is their heterogeneity. Hedge funds are said to manage “strategies” — not “asset classes” — which underscores the divorce between absolute return approaches and traditional benchmarked management approaches. Strategies, or processes, as MSCI terms them, range from various types of “relative value” or arbitrage approaches, which exploit pricing anomalies between substitutes (including well known approaches such as convertible arbitrage, option volatility arbitrage, and merger arbitrage), and “directional” approaches based on anticipated movements of asset classes.

Exhibit 20: MSCI Hedge Fund Classification

Process Group	Investment Process	Process Group	Investment Process
Directional Trading	Discretionary Trading	Security Selection	Long Bias
	Tactical Allocation		No Bias
	Systematic Trading		Short Bias
	Multi-process		Variable Bias
Relative Value	Arbitrage	Specialist Credit	Distressed Securities
	Merger Arbitrage		Long-short Credit
	Statistical Arbitrage		Private Placements
	Multi-process	Multi-process	
		Multi-Process Group	Event-driven Multi-process

Source: MSCI

These two features alone, small scale and wide variety, frame the investor’s predicament: How does one invest in this sector? How does one identify superior performance, or rather, superior ability? What are the risks of investing with hedge funds, and how may they be mitigated?

Ultimately the tools for large-scale investment in such a “granular” hedge fund sector will come from the traditional tool kits. The financial services industry has produced tools for managing assets that are non-homogeneous (equities, real estate), less liquid, with limited transparency. These include fundamental analysis and quantitative analysis, active and passive management, and pooling of ownership through funds of funds or via securitization. When we envision a hedge fund industry that has quadrupled in size, absorbing over \$800 billion in flows over the balance of the decade, we foresee institutional investors managing their investments in hedge funds with a number of these tools. We will look more closely at the alternatives in the next section. Herein, we will specify some of the risks that institutional investors will want to address, because how they do so offers keys to the industry’s future organization.

Exhibit 21: Risks of Hedge Funds

Non-Systematic	Systematic
Access	Available sector returns
Investment process and research	Capital market conditions
Leverage	Regulation
Liquidity	Sector specific risks
Portfolio transparency	
Quality of personnel	
Risk management tools	
Scale of operations	
Tenure of personnel	

Source: NewRiver

Scale

As discussed above, the average hedge fund is quite small, with under \$100 million in assets, and the median fund is much smaller. Smallness can offer both benefits and risk. It is a desirable attribute for an absolute return manager seeking to capitalize on his/her best ideas, and in fact, the performance fee structure compensates a manager for remaining small when asset growth is incompatible with sustaining performance. However in a portfolio, smallness – especially combined with leverage – increases risk arising from concentration. Thus risk from concentration may remain a structural feature of the hedge fund industry, requiring institutions to find the means of identifying a suitable set of funds and spread its assets among them.

Leverage

Leverage is widely used in hedge fund strategies: 71.5% of funds surveyed used leverage, and nearly 20% of funds used in excess of 100% capital. Among hedge fund strategies, leverage is used most extensively in implementing market neutral styles. Even with distressed securities – where leverage is inherent in the discounted pricing of the securities and market illiquidity presents unusual challenges – over 40% of practitioners used leverage, (but only a small fraction – 3% – used “high” leverage). Macro strategies are among the greatest users of leverage (88% of respondents).

Exhibit 22: Global Hedge Funds—Use of Leverage (December 2001)

Hedge Fund Strategy	Don't Use Leverage	Use Leverage		
		Total	Low (<2:1)	High (≥2:1)
Aggressive Growth	30.9%	69.1%	59.8%	9.3%
Distressed Securities	58.7%	41.3%	38.1%	3.2%
Emerging Markets	31.4%	68.6%	56.7%	11.9%
Fund of Funds	21.8%	78.2%	59.3%	18.9%
Income	37.0%	63.0%	42.5%	20.5%
Macro	12.1%	87.9%	51.5%	36.4%
Market Neutral - Arbitrage	20.3%	79.8%	24.2%	55.6%
Market Neutral - Securities Hedging	30.3%	69.7%	34.5%	35.2%
Market Timing	33.0%	67.0%	29.9%	37.1%
Opportunistic	25.3%	74.7%	51.7%	23.0%
Several Strategies	35.0%	65.0%	43.3%	21.7%
Short Selling	33.3%	66.7%	56.4%	10.3%
Special Situations	19.4%	80.7%	71.9%	8.8%
Value	32.6%	67.4%	61.5%	5.9%
Total Sample	28.5%	71.5%	52.1%	19.4%

Source: Van Hedge Fund Advisors

Disclosure

Leverage is a powerful and at times dangerous tool, and institutional investors must arrive at an understanding of when it is deployed, what measures are taken to quantify and manage its downside potential, and how it might affect the returns of a manager or strategy. However, detailed portfolio information is rarely in the offing from hedge funds. A recent survey indicates that hedge fund managers were most likely to assert that disclosure of position information could compromise fund performance. FoHF managers on the other hand appeared more agnostic, with the greatest number allowing that damage from disclosure of positions would be strategy dependent. Fifty percent of hedge fund managers in the survey would not provide position level detail to anyone, but would provide a risk profile of the fund. One-third said they do currently provide position level detail to investors, and the balance said they do not currently provide position level detail, but would be willing to do so.

Exhibit 23: Survey of Managers’ Attitudes Towards Risk and Disclosure

Do you think disclosing detailed position information compromises the performance of a hedge fund?

Disclosure has a:	Hedge Fund	FoHF
Significant impact	37%	14%
Material impact	13%	14%
Minimal impact	25%	14%
Depends on strategy	25%	44%
None at all	0%	14%

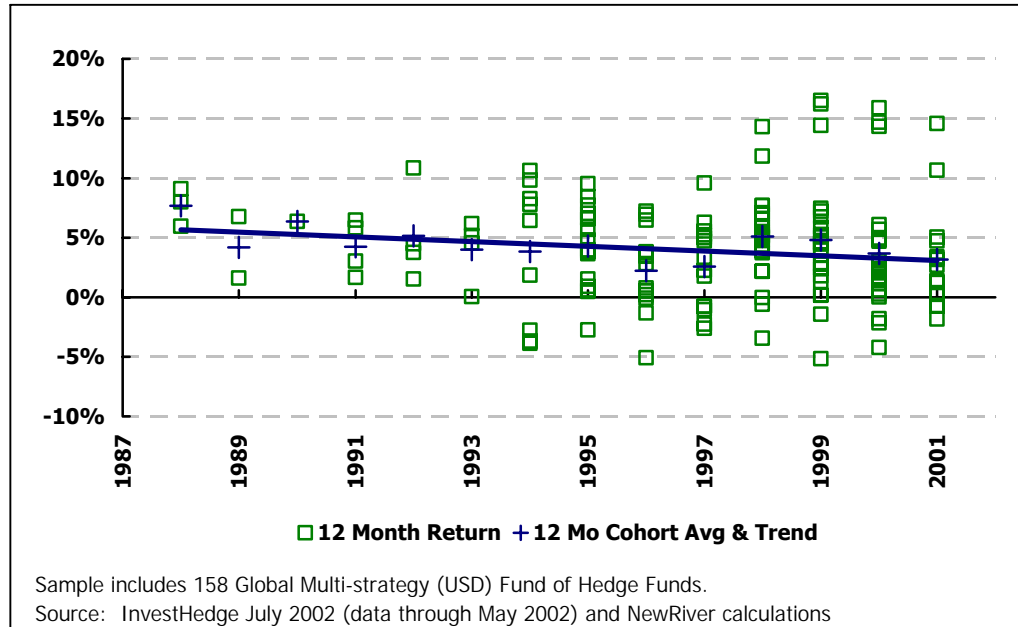
Source: Capital Market Risk Advisors

Performance

Money management is a “people” business, and hedge funds, which thrive on the energy and skill of the industry’s elite managers and traders, concentrate performance risk in the hands of a few key players. A number of provocative analyses that examined the “life cycle” of a hedge fund have found that younger funds are more productive (one study which examined the performance of emerging hedge fund managers found a performance premium and noted that Sharpe ratios declined about 5% per year over the first seven years).

We found that segregating trailing one-year performance (through May 2002) of 158 global multi-strategy fund of hedge funds by year of inception showed both evidence of better performance by some of the new funds as well as stronger performance by the oldest, surviving funds. There was a definite negative trend in favor of the older funds (survivor bias). However, the outlier performance of the most recent funds (the hot hands) absolutely dominated the veterans.

Exhibit 24: Veterans versus Hot hands: Global Multi-Strategy FoHF Returns

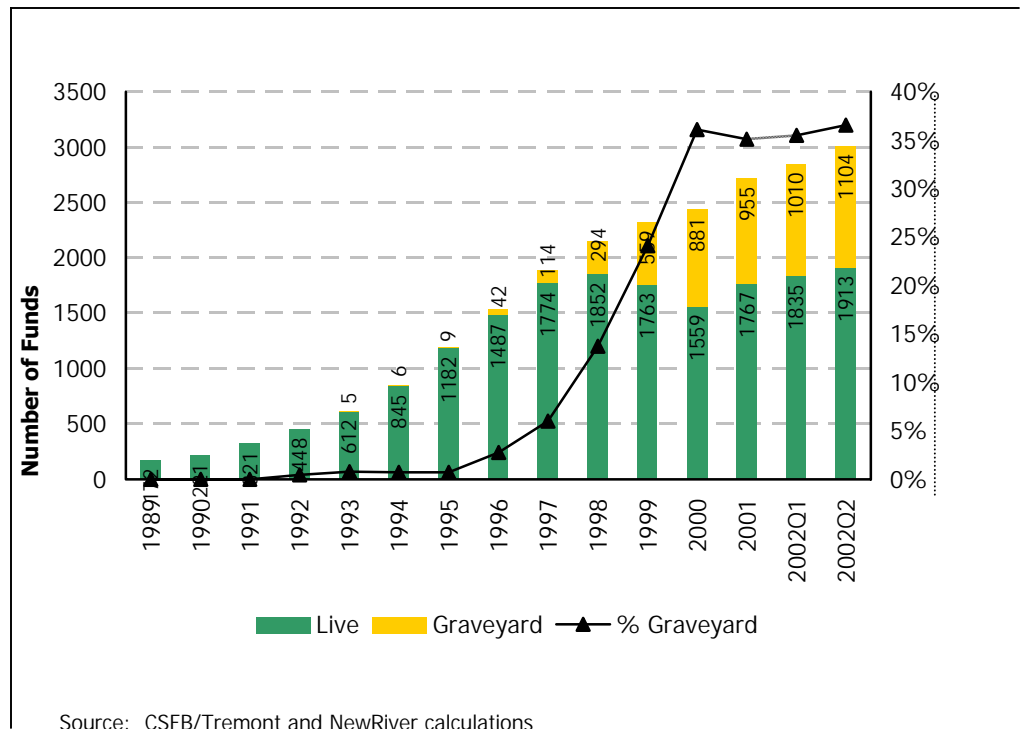


Institutions typically avoid the risk of investing with younger organizations, preferring a seasoned track record and a mature organization. An implication is that they may be selecting themselves away from significant pockets of performance. These “life cycle” considerations suggest that ongoing manager due diligence, and in particular some consulting utility that could go beyond ex-post performance ratings would be very attractive to institutions.

Reinvestment and Access

The hedge fund world has its own form of “prepayment” or reinvestment risk: fund closures. When a high-yielding bond or mortgage is called by the borrower, the lender must find a substitute asset. Hedge funds can cease operations or close themselves to new investment. The TASS database as of the June 2002 report contained 3,017 funds, including 1,104 "graveyard" funds, or 36.6% of the database. Graveyard funds are defined as funds which were in existence at some point during the life of the database, but which are now no longer in operation or have ceased to report. The growth of graveyard funds within the database shows that attrition is a constant, raising the due diligence requirements of institutional investors.

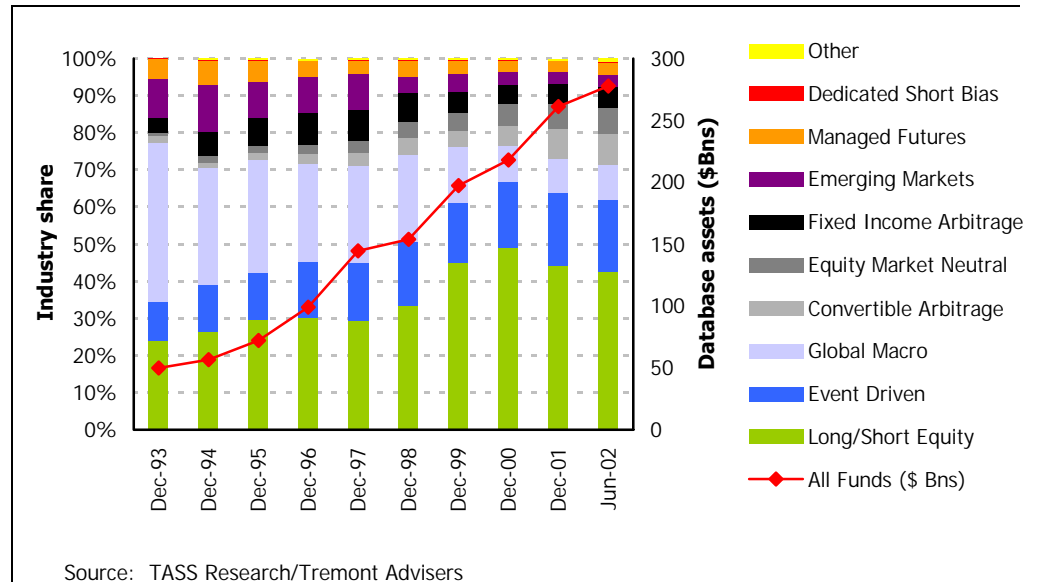
Exhibit 25: Packing When It Begins to Rain: TASS Database Attrition



Scarcity

Scarcity presents another risk to institutional investors. The distribution of assets across strategies is not uniform. Sixty percent of assets, as represented in the TASS database, are invested in Long/Short equity and Event Driven funds. The TASS database recorded \$278 billion in all strategies in June 2002, and estimated that the total capital base under management within the industry is \$500 billion to \$600 billion. The compound annual growth rate of total assets has been 22.4% since December 1993.

Exhibit 26: Hedge Fund Industry Assets (TASS Database): Proportion and Scale



Some traditional strategies such as Convertible Arbitrage or Equity Market Neutral contain approximately \$20 billion each, or industry-wide, perhaps \$35 billion. To put these amounts into institutional perspective, recall that individual assets of the largest corporate pension plans exceed the amounts globally invested in these strategies. (See Exhibit 10 on page 20 above). However, these strategies continue to grow in size.

In summary, the institutional world faces a range of obstacles before it can commit meaningful allocations of assets to hedge funds. To ramp up investments to such an extent, the hedge fund industry will have to stretch, reinforce, and recondition its capabilities. The direct access model, relevant to the high net-worth world, will not suffice.

When institutions decide to go “long” hedge funds, they will require many more funds. Information flows will need to be standardized to facilitate comparability and analysis. New pooling structures—passive investment vehicles, exchange traded units, or securitization vehicles—are coming down the pike.

Section 4: Looking Ahead to a New Order

The hedge fund market is assuming a form of standardization now that approximately 20% of assets are managed by FoHFs. Already hedge fund databases, standards of manager review, and quantitative methods of analysis are becoming more sophisticated. Nonetheless, the standards that have coalesced are closer to the practice of a fragmented market, in which investors are looking to gain access to relatively short lists of “preferred” managers or desirable emerging talent.

The polarization between fragmentation on the manufacturing side and scale on the distribution side will persist in the hedge fund arena as it has in other areas of money management. It will continue to define the structure of the industry, which will be extremely dependent on intermediaries. Investors should need assistance to identify suitable investments in a proliferating field, to gain access to funds with limited capacity, and to perform sophisticated analysis of the joint performance of investments to understand the efficiency and the risks of their portfolios.

These services are currently being provided by FoHFs, but as sophisticated investors demand increasing quantitative verification, we believe that global financial institutions will become more involved. The analysis of hedge fund performance will become increasingly formalized and technical, requiring deep capital commitments to support the maintenance and integration of the professional and technological infrastructure. Institutions that develop the ability to rate and package hedge funds for individual investors’ portfolios will also have the means to provide structured hedge fund products to the capital markets. As the industry matures, global financial intermediaries will play an important role.

We expect there will be tremendous value added in becoming skilled at assessing how hedge funds perform successfully. Intermediaries — whether institutions or FoHFs, or even larger hedge funds — which can rate investment processes, understand risk controls, and evaluate people will be able to identify new players and up-and-coming strategies. Not only will they have a competitive edge in a static sense, in assisting institutional investors, but also they should have a dynamic advantage in their ability to incubate and seed new vehicles, and to propagate their own businesses.

As a consequence of their need to analyze and compare many funds and strategies, investors desire portfolio-level holdings information. Providing such is a challenge to the fragmented, open-architecture world of FoHFs, since many managers are determined to avoid disclosure (many for the valid reason of protecting the integrity of their alpha generating capacity). As a result, third-party utilities may get the job of distilling private data into summary metrics of sector allocations, asset class and market sensitivities, and leverage. One name bandied about as a likely provider is RiskMetrics, which Tremont Advisors hired to develop web-based risk reporting tools for hedge fund managers and investors. Capital Markets Risk Advisors earlier disclosed that they were being solicited to market what was termed a “risk transparency service.”

Portfolio disclosure is also a very sensitive issue to institutional investors, who are fiduciaries of beneficiaries' assets under the law. Fiduciaries have to uphold "Prudent Investor" requirements, adhering to standards of due diligence and portfolio monitoring. However, it seems increasingly clear that position transparency is less relevant to hedge fund due diligence than it might be in a traditional investment process. Hedge fund turnover can be high, and investors need a dynamic read of the performance of a process, as opposed to a portfolio. Some analysts advocate "returns-based" metrics, obviating the need for a portfolio level view. Statistical profiling and explicit policy specifications may be adequate to characterize hedge fund performance.

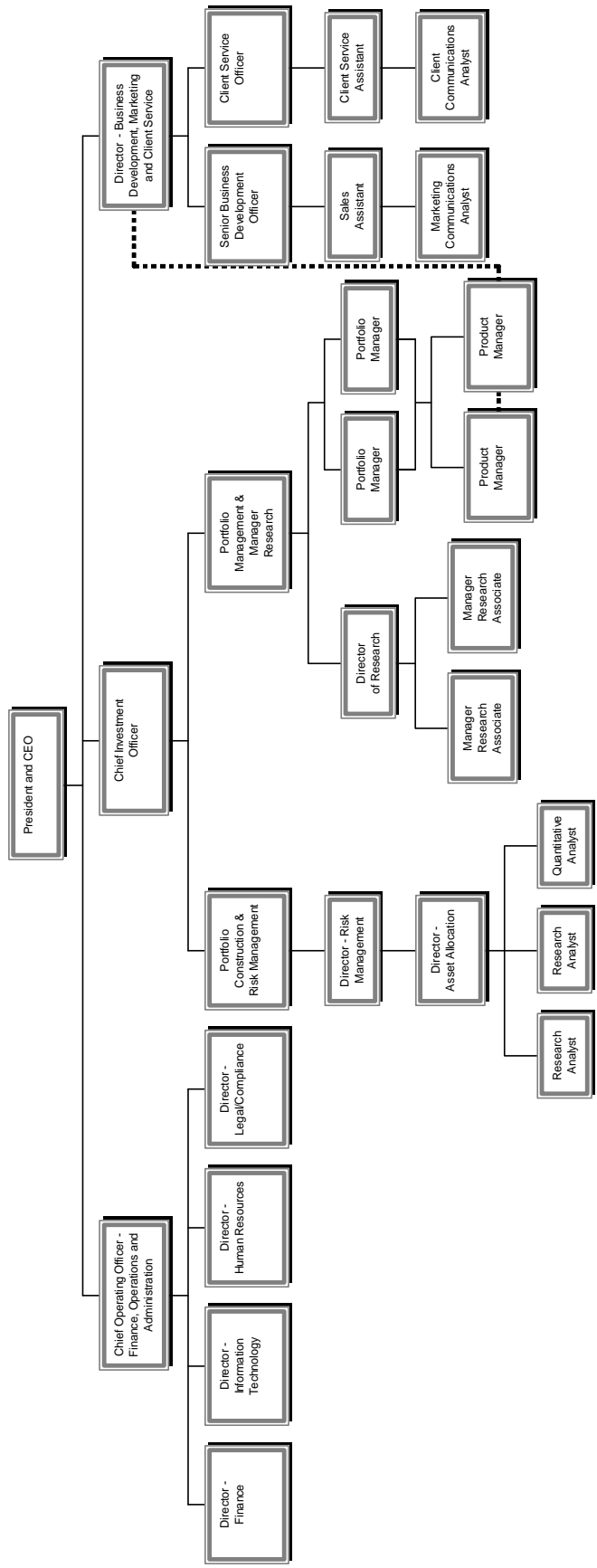
Total transparency for analytical purposes can be attained in a proprietary setting, where every fund is a holding of the distributor. It is possible that hedge fund proprietary platforms will have a greater share of the hedge fund market than in other sectors of the money management industry, such as mutual funds or separately managed accounts. A successful proprietary strategy should be able to deliver customized FoHF products, with less risk of misrepresenting the underlying manager's strategy.

Priorities: Performance, Process and Risk Control, and People

Who will dominate the industry in the future? In the institutionalized hedge fund industry, funds that display a rigorous control of process and risk will attract the most sophisticated intermediaries, and they in turn should attract the largest investors. Entities that can source new talent and incubate new products will rejuvenate themselves as older strategies and personnel begin to fade. Entities that successfully measure and control the joint risk of different strategies will be best positioned to market structured products.

A mature hedge fund or FoHF will need to build a full set of capabilities, including operating structures (Compliance, Finance, Human Resources, Technology), investment structures (research and portfolio management), and marketing and client service capabilities. In response to a four-fold increase of European hedge fund assets in the span of three years, market practitioners "over there" have issued a *Guide to Sound Practices for European Hedge Fund Managers*. The guide lays out in clear detail the business and investment systems an institutionalized firm will need to present, including financial, compliance, and human resources systems; as well as policies for investment processes, investment dealings, risk management, and portfolio valuations. Policies for dealings with outside parties are also covered, including investors and third-party service providers.

Exhibit 27: Alternative Investment Management Firm: Representative Structure



Source: Prince Goldsmith

M&A activity in the hedge fund arena has focused on FoHF managers, which attests to the interest of financial institutions in acquiring the means to simultaneously gain access and capacity on the one hand, and product diversification and the abilities to manage and monitor risk on the other. Providers of services to institutional investors have also announced acquisitions in the hedge fund arena: State Street Corp. announced an agreement to acquire International Fund Services Ltd., a leading provider of accounting and administrative services for hedge funds, and BISYS recently completed the acquisition of The Hemisphere Group, a hedge fund administrator serving 400 funds with a combined \$50 billion in hedge fund assets under management. We anticipate other acquisitions of this sort. Financial investors are also engaged. Notably, TA Associates has made acquisitions in the past two years. TA has been a signal investor in traditional asset management firms, such as AIM and AMG. The due diligence priorities of financial institutions which are acquiring hedge funds and FoHFs include the investment track record, the coherence and reliability of the investment process, the depth of management teams, risk management and controls, and capacity in products. These priorities should also be reflected in the due diligence process of institutional investors.

We observe that they are. CalPERS, which has undertaken the most visible search for \$1 billion of hedge fund capacity, has announced \$440 million of assignments to date (See Exhibit 13). CalPERS' investment committee has provided a window into its selection process in the form of public memoranda, which we have tabulated in Appendix 1 to this report. These memoranda give a clear indication of this institutional investor's priorities:

- Well-defined investment strategies and long term investment track records that have stood the test of market cycles.
- Well-organized firms with distinct divisions of responsibility and a well thought-out business platform.
- Deep investment teams with institutional support.
- Long-term professional associations among partners; strong working relationships.
- Sophisticated technology.
- Solid risk controls and well-defined leverage policies.

Exhibit 28: Recent Hedge Fund M&A Transactions

Deal Signed	Target	Acquirer	Target Type	AUM (\$MM)	% Acquired
9/02	Cylenius Capital Mgmt	Blackrock	Single Manager	\$100	n/a
7/02	Sage Capital Mgmt	Robeco Groep	Multi-Manager	\$289	100%
6/02	Riverview Int'l Group	Gartmore	Multi-Manager	350	85%
6/02	Attica Holdings UK	Theadneedle Asset Mgmt	Multi-Manager	303	30%
6/02	HBV Capital Mgmt	Mellon Financial Corp	Single Manager	530	100%
5/02	RMF Investment Group	Man Group	Multi Manager	8,531	100%
5/02	CCF-SEI Investments	SEI Investments	Multi-Manager	n/a	50%
5/02	Momentum Group	UniCredito Italiano Group	Multi-Manager	1,500	100%
4/02	Asset Alliance Corporation	Nikko Cordial Securities	Multi-Manager	4,100	12%
7/01	Tremont Advisers, Inc.	OppenheimerFunds	Multi-Manager	5,175	n/a
6/01	Symphony Asset Mgmt	Nuveen Investments	Single Manager	\$4,347	100%
2/01	Zola Capital Management	Asset Alliance Corporation	Single Manager	100	100%
2/01	P/E Investments	Asset Alliance Corporation	Single Manager	130	100%
1/02	Clinton Group	TA Associates	Multi-Manager	5,800	n/a
1/01	Systeia Capital Mgmt	Credit Lyonnais Asset Mgmt	Single Manager	234	78%
8/00	Glenwood Group	ED&F Man Group	Multi-Manager	1,000	100%
8/00	Ivy Asset Management	Bank of New York	Multi-Manager	2,470	100%

Source: Putnam Lovell NBF Research and NewRiver

We believe that CalPERS, in publicizing its investment process, has both delineated the hallmarks of an “institutionalized” firm, and established a pattern that many other institutional firms will emulate, accelerating institutional participation in the hedge fund arena.

To date, traditional asset managers have gathered a tiny share of hedge fund assets, certainly slight in relation to their traditional asset categories. The cultural barriers between long and absolute return styles may be a factor, as well as internal conflicts of interest that potentially arise from fielding asset-base and performance-based fee structures (and compensation systems). Of less permanent nature may be the reticence

of their traditional clientele to invest in hedge funds and, for some managers, their lack of direct exposure to the High Net Worth marketplace. Firms such as Deutsche Asset Management have created a stand-alone division for the incubation, structuring, and distribution of hedge fund products, which will catapult them ahead of other traditional managers.

New Products and New Roles Ahead

The proliferation of hedge funds and the challenge of identification on the one hand, and the range of investor analytical and research abilities and risk appetites on the other, will support a spectrum of products that enable investors to calibrate their exposure to the risks of investing. Investors should be able to seek a range of diversification, liquidity, transparency, or principal protection. Every item in Exhibit has been proposed or is under trial in the hedge fund industry.

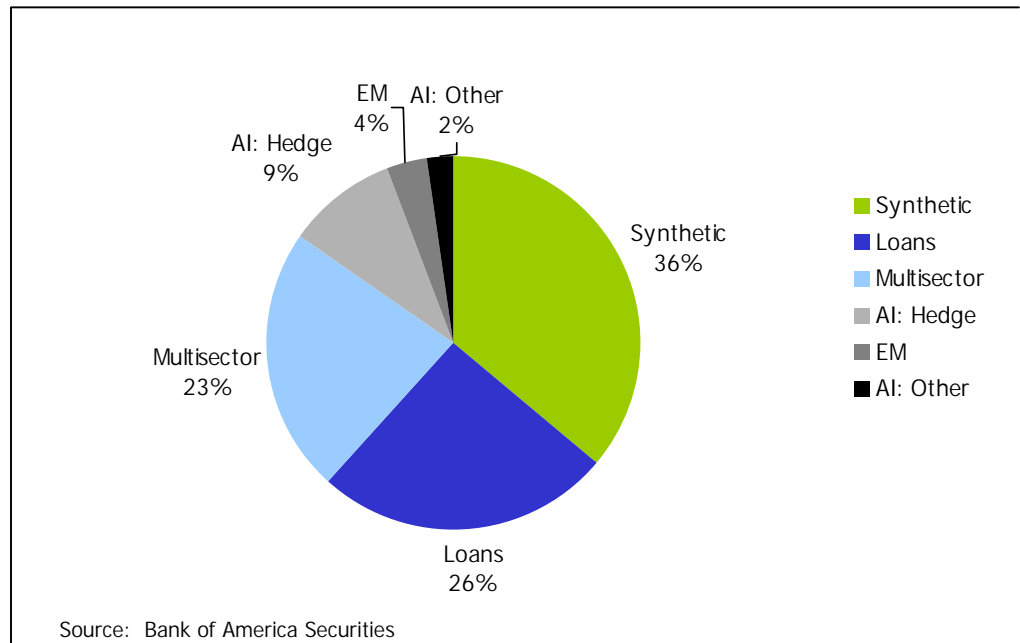
Among the more interesting efforts are structured and principal protected products, which blend investments through FoHFs with other pools of securities or with insurance support. These are being sold in the retail and the institutional markets. Structured products may take the form of principal protected notes, featuring guarantees from insurers, swap arrangements, or rebalancing schemes. Collateralized fund obligations are in the works, comprising nearly 10% of the reported \$17 billion U.S. domestic CDO pipeline in August, although it is said they have been difficult to finance. Nonetheless, Concordia Advisors recently announced the first single-firm CDO, a \$100 million offering to be underwritten by Salomon Smith Barney

Exhibit 29: Innovations for Managing Diversification and Risk

- Fund of Hedge Funds
- Indexation
- Insurance wraps and principal-protected products
- Off-shore exchange of hedge fund shares (Bermuda)
- Registered shares
- Risk transparency services
- Secondary distribution
- Securitization/Collateralized Fund Obligations

Source: NewRiver

Exhibit 30: CDO New Issue Pipeline (\$17 billion, August 2002)



Indexation of hedge funds is being proposed as an alternative to direct or FoHF investment approaches. The arguments for hedge fund indexation are familiar: that direct investment will not provide adequate diversification, that actively-managed performance is not consistent, and that indexed products are cheaper. MSCI and Standard & Poor’s are producing passive products, but these are based on relatively short lists of forty or so managers. S&P’s managers (see Appendix 2 for a summary of the participants) have committed \$100 million of capacity each, amounting to \$4 billion, and the product will be distributed in part by PlusFunds, an electronic platform for trading units in hedge funds on the Bermuda Stock Exchange.

As the industry institutionalizes, and investors and product and service providers move down their collective learning curves, existing players should find themselves taking on new roles and confronting competition from new sources.

Exhibit 31: New Products and Opportunities for Traditional Players

Entity	Existing role is to provide:	In future will provide:
Broker	Back office support Distribution Incubation	Capital markets origination Market making Packaged products (retail) Securitization
Consultants	Advice	Manager selection
Custodian	Administration Fiduciary oversight	Passive management “Risk transparency service”
FoHF	Information and access Due diligence Portfolio construction Manager selection	Investment guidance Manager selection Portfolio construction
Hedge Fund manager	Boutique management	Multi-manager/style organization
Institutional Investor	Product demand	In-house Hedge Fund manager
Insurance Cos.	Product demand Principal protected products	Risk and tax structuring
Traditional Manager	Talent Competition	Active portfolio management Competition

Source: NewRiver

One pertinent question to ask is: What is the future role of consultants in helping pension managers select hedge funds? More than two-thirds of pension funds rely on consultants to recommend their asset allocation mix, find and help select money managers, and measure investment performance. To date, it appears that consultants have been less enthusiastic than some of their clients in promoting investment in hedge funds. Since performance metrics for absolute return products are different from traditional benchmark-based analytics, consultants are just beginning to develop this capability.

We suspect that FoHF providers will become established as the independent third party advisor for institutional investors. In addition to having mastered the analytical techniques, FoHFs have experience in combining hedge funds into tailored multi-

manager products that suit the requirements of a given pension investor. A crucial difference between the hedge fund world and the traditional world is limitations of manager capacity. FoHFs have traditionally provided investor access, and as their operations mature, they will be more involved in sourcing and reserving capacity.

Prognosis for the Main Players

Single-style hedge fund managers will be forced to choose whether they want to build capabilities in high capacity strategies and establish the infrastructure – along the lines of the European Guide discussed above – to compete for institutional assets. Needless to say, this is an expensive and risky undertaking, requiring lift outs, acquisition of other managers, or providing seed capital to support new products, with an existing or new management team. Outsourcing may provide solutions for managers who are investors first, business builders second. The alternative option is to remain a boutique firm, and seek assets through a FoHF player. Such managers will live and die by their performance; as extensions of an open architecture framework they will be exposed to fee compression and potential hot money.

Fund of Hedge Fund managers should remain an important vehicle for disseminating investment into hedge funds, but they will be forced to constantly upgrade their abilities to track, source, and combine single-style managers into competitive products. To maintain a competitive edge, they must improve their ability to educate institutional investors, and use capital to seed new managers. Pension consultants and pension investors themselves should eventually become more familiar with the universe of individual hedge fund players with whom they are confident in doing business and should, themselves, begin to take individual positions directly. Large financial institutions may also become successful at providing competitive services, and they will moreover have the capital to compete for capacity. For many FoHF competitors, the completion of this process will mean consolidation, or a move down-market to serve smaller institutions and mass-affluent individual investors.

FoHF managers are no doubt already feeling some of these pressures, as witnessed by their high representation on the target side of the M&A ledger. Sales should continue apace, with the caveat that excess supply may impact pricing for all but the best properties. Ideally, a seller would merge its capabilities with an organization having complimentary capabilities, such as the distribution clout to effectively acquire and serve institutional investors with customized solutions, or provide the “manufacturing” input to distributors of securitized structures or insurance wrappers which a distribution-oriented parent could provide.

Conceivably, FoHFs could take the role of acquirer, although financing would be a definite obstacle. The objective would be to preserve access to manager capacity (and thus the FoHF’s relevance to its clients) while profiting from the overall growth of the acquired businesses.

Large financial service institutions will regard their hedge fund capabilities as a means to address a range of attractive clients with a highly cross-salable product. For these organizations, the decision to grow hedge fund capabilities is only a portion of their potential solution. Only a few major institutional firms with deep investment expertise (probably of a quantitative nature) will develop large-capacity individual styles. Players might include Barclays, State Street, Deutsche Asset Management, Credit Suisse, Citigroup Asset Management, Bank of New York, J.P. Morgan Chase, and Mellon.

Others should concentrate on creating fund of funds capabilities, based on incubating proprietary managers, and fielding the analytical tools to support new products and client portfolio analyses. These products will be extremely popular with high net worth investors but will rely on global research platforms. Building and maintaining a research organization like this organically is costly and time consuming, which explains the trend of financial institutions acquiring multi-manager platforms.

Conclusion

We understand the allure of hedge funds. Certain hedge fund strategies have the potential to mitigate the pain of negative returns and volatility resulting from traditional asset allocation approaches. Demand for absolute return strategies is driven by their more precise alignment of portfolio objectives with the risk and return preferences of institutional, and for that matter, retail investors. Above zero or cash returns, to the extent they can be engineered through hedge fund exposure and delivered consistently regardless of capital market direction, may be vital to the future of asset management. However, while the risks of hedged approaches may appear acceptable on average, their extreme manifestations can be terrifying to private and institutional investors. The practical need to divine which hedge fund managers have intellectually defensible approaches and separate them from those that “*follow but for form*” is paramount.

The financial services industry will respond rapidly to this investor need, and the organization and structure of the hedge fund industry will adapt to more effectively service the broader range of constituencies than they have served in the past. Hedge fund managers will likely fall into a couple of camps: those that desire to attract additional assets from this new realm of investors, and those that do not. The challenge for those that do will be the ability to retain the culture, incentives, and organizational “temperament” to meet the demands of institutional scrutiny while delivering results. As packaging and delivery innovation accelerates, and increased regulatory oversight looms, a more rational and sound hedge fund industry structure will evolve, transforming the free-wheeling cottage industry of yesterday into the more relevant and formalized structure of tomorrow.

Appendix 1: Summary of CalPERS Hedge Fund Investments

Firm	Fund
Andor Capital Management	Andor Technology Fund
Strategy	<p>Research intensive, hedged equity fund focusing on US technology. Portfolio built bottom up; process assesses whether exposures are suitable given the current market and economic environment. Research process is vertically integrated with a good deal of cross-fertilization of ideas across the technology subsectors. Takes directional bets.</p>
Organization	<p>Andor was created out of the recent split of Pequot Capital Management. Their individual company research is extremely thorough, including quarterly on-site meetings with each position in the portfolio. The significant infrastructure and experienced back office team are also strengths of this organization.</p>
Risk management	<p>Extremely cognizant of the various sources of risk in the portfolio and employs a rigorous risk management process that seeks to identify, measure, monitor and manage the various dimensions of portfolio risk. Has a full-time individual devoted to risk analysis. Does not use leverage on the long side and gross exposure does not exceed 150%.</p>
Apex Capital, LLC	Zaxis Partners, LP
Strategy	<p>Utilizes a fundamental, bottom-up, research-driven approach. Much of their success can also be attributed to keen trading instincts in trading around positions and their agnostic approach to stocks—a willingness to be long or short a given name at any point in time.</p>
Organization	N/A
Risk Management	<p>Long-biased strategy, will normally be 25-85% net long and has averaged 65% net long since inception (85% long/20% short). The portfolio is very diversified and will typically include approximately 250-300 names, with approximately 50% of these on the short side. Average holding period will be much longer with long positions than with shorts.</p>

Appendix 1 (continued): Summary of CalPERS Hedge Fund Investments

Firm	Fund
Atticus Capital Management	Atticus Global
Strategy	Aggressive strategy attempting to opportunistically trade around the spreads of merger arbitrage deals. This is a higher concentration fund that uses short term trading strategies, option strategies, and greater exposure to capture additional returns from those corporate events. Given the large amounts of capital in the merger arbitrage sector and limited deal flow, the strategy can profit from trading around market dislocations.
Organization	Formed in January 1996 as a traditional merger arbitrage group. This is a very well organized firm. Business appears to be extremely well thought out with distinct divisions of responsibility. Operates at a high level of communication among the senior managers due to their history of working together.
Risk Management	Typical leverage is 2:1 (i.e., longs plus shorts equal 200% invested). All foreign currency exposure is hedged back to US dollars.
Brookside Capital Partners	
Strategy	Takes a private market valuation approach to public equity investing.
Organization	Brookside's investment team is extremely deep and they are able to leverage the resources of Bain Capital.
Risk Management	The long side of the portfolio is concentrated, with the top ten positions representing 40-50% of capital. Brookside will tend to have a longer-term investment horizon (1-3 years) and they manage the portfolio with little consideration for month-to-month volatility. However, they do use their short positions to mitigate some of the risks of their longs, with 95% of their shorts considered hedges to their longs as opposed to pure alpha generators.
Evine-Vaughan Associates	Pentangle Partners
Strategy	EVA runs a dollar neutral, equity statistical arbitrage strategy based on the premise that near-term stock price anomalies will correct themselves and return to normal trading ranges.
Organization	Founded in 1992, as an affiliate of Iris Financial, a financial software development firm. Iris specializes in sophisticated trading and risk management platforms for a host of top tier institutions
Risk Management	EVA's portfolio is broadly diversified with approximately 400 individual long and short positions. Positions are initiated as full positions typically between 0.5% and 1% of capital. The portfolio is constructed to be neutral on a dollar, beta and other systematic exposure basis. BARRA's E3 equity factor risk model is incorporated into the portfolio optimization process to constrain factor exposures and limit risk.

Appendix 1 (continued): Summary of CalPERS Hedge Fund Investments

Firm	Fund
Farallon Capital Management, LLC	Farallon Capital Offshore
Strategy	The merger arbitrage portfolio is focused on announced global corporate takeovers. The fund invests in securities which are believed to be underpriced relative to their intrinsic or fundamental value or which are expected to appreciate in value if circumstances change or an anticipated event occurs.
Organization	This is a very well organized, deep firm and the business platform is extremely well thought out and the divisions of responsibilities distinct.
Risk management	The firm operates at a high level of communication among the senior managers due to their history of working together throughout Farallon's 12-year existence.
Liberty Square Asset Management	Liberty Square Partners
Strategy	Stock selection is based on fundamental, bottom-up research that recognizes and builds on the inefficiencies in foreign markets. The firm identifies both undervalued and overvalued securities, which are managed on both a long and a short basis.
Organization	Group has deep experience investing overseas and each partner contributes a special area of interest and focus. Partners' level of business experience adds considerably to the depth of the organization. The partners have known one another through professional association for most of their careers and that has translated into strong working relationships.
Risk Management	Gross exposure has been 80-100%, with very low net exposure. Portfolio reviewed as a whole to determine that there are no large implicit exposure biases in the portfolio, such as geographic, sector/industry, style (value/growth) or size (small vs. large).

Appendix 1 (continued): Summary of CalPERS Hedge Fund Investments

Firm	Fund
Symphony Asset Management	Rhapsody Fund
Strategy	Credit-oriented convertible arbitrage strategy. Equity management process combines quantitative screening and signals with qualitative fundamental research. In the convertible and fixed income areas, this work is augmented with extensive credit analysis. Focuses on managing the credit and the underlying valuation of the company in question. Symphony structures the individual long convert/short stock trades to take a view on the company's fundamental credit outlook and the stock's short to medium term (three to nine months) prospects.
Organization	Symphony, purchased by John Nuveen Company in the summer of 2001, manages a number of hedge fund strategies, including hedged equity (US and UK/Europe), convertible arbitrage and fixed income.
Risk Management	The portfolio typically holds 40 to 50 positions and is focused mostly in the U.S. (approximately 80 to 90%) with the remainder in Europe. Currently, 60% of the portfolio is investment grade. The leverage employed in the fund is currently 2 to 1 and will be inversely related to the non-investment grade exposure of the portfolio. Solid risk controls, particularly with respect to credit.
Tosca	Fundamental, bottom up stock picking approach guided by a thematic overlay that emphasizes long-term secular trends. The fund focuses on highly liquid, large cap financial and business services stocks globally. The firm seeks to identify trends that will have a significant impact on companies within the financial services sector. Company formed in 2000. Principals have worked together for eight years.
Strategy	Fundamental, bottom up stock picking approach guided by a thematic overlay that emphasizes long-term secular trends. The fund focuses on highly liquid, large cap financial and business services stocks globally. The firm seeks to identify trends that will have a significant impact on companies within the financial services sector.
Organization	Company formed in 2000. Principals have worked together for eight years.
Risk Management	Tosca will hold around 45 positions in total with low portfolio turnover. Maximum gross exposure is 250% and the fund has the flexibility to range from 50% net long to 50% net short. Historically, they have provided alpha through their stock selection with little exposure to broad market moves.
Source: CalPERS (http://www.calpers.ca.gov) and NewRiver Inc. Material gathered from reports titled "Executive Summary of Action Taken Under Delegation of Authority", which are submitted to the Investment Committee at their monthly meetings.	

Appendix 2: S&P Hedge Fund Index Constituents

Tracking Fund/Portfolio/Advisor	Strategy
Arbitrage	
First Quadrant US Market Neutral	Equity Market Neutral
Jemmco International Fund, Ltd.	Equity Market Neutral
Salus Market Neutral Strategy	Equity Market Neutral
Thales Fund Management, LLC ¹	Equity Market Neutral
Zeus Equity Arbitrage Fund Ltd.	Equity Market Neutral
Clinton Group, Inc. ²	Fixed Income
Arbitrage	
Deerfield Capital Management ³	Fixed Income
Arbitrage	
Ellington Overseas Partners, Ltd. ⁴	Fixed Income
Arbitrage	
MKP Offshore Partners, Ltd.	Fixed Income
Arbitrage	
Priton Capital Offshore Trust	Fixed Income
Arbitrage	
Clinton Group, Inc. ⁵	Convertible Arbitrage
Deephaven Market Neutral Fund Ltd. ⁶	Convertible Arbitrage
Forest Global Convertible Fund Ltd. (Class A-5)	Convertible Arbitrage
SSI Hedged Convertible Market-Neutral (Leveraged 3:1)	Convertible Arbitrage
TQA Vantage Fund Ltd.	Convertible Arbitrage
Event-Driven	
Contrarian Capital Senior Secured Offshore Fund Limited	Distressed
MW Post Opportunity Offshore Fund, Ltd.	Distressed
Ramius Capital Group LLC ⁷	Distressed
The Varde Fund (Cayman), Ltd. ⁸	Distressed
Aetos Corporation	Merger Arbitrage
KD Offshore Fund, C.V.	Merger Arbitrage
The Merger Fund Ltd.	Merger Arbitrage
The Canyon Value Realization Fund (Cayman), Ltd. ⁹	Special Situations
Halcyon Offshore Event-Driven Strategies Fund	Special Situations
Mariner Investment Group Inc. ¹⁰	Special Situations
Metropolitan Capital Advisors International Limited	Special Situations
Para International Fund Ltd.	Special Situations

Appendix 2: S&P Hedge Fund Index Constituents (continued)

Directional/Tactical

Bricoleur Offshore Ltd.	Long/Short Equity
Cumberland Partners	Long/Short Equity
Lazard Global Opportunities	Long/Short Equity
Omega Overseas Partners Ltd. ¹¹	Long/Short Equity
Sparx Long-Short Fund Limited	Long/Short Equity
Campbell Financial, Metals & Energy Large Portfolio (FME Large)	Managed Futures
Chesapeake Diversified Program	Managed Futures
Graham Global Investment Fund Ltd. (Diversified Portfolio)	Managed Futures
Rotella Polaris Fund, Ltd.	Managed Futures
Big Sky Global Vision, L.P.	Macro
Epoch Overseas, Ltd.	Macro
Millennium Global Currency Fund	Macro
Vega Global Fund Limited	Macro

Notes:

- 1 Market Neutral Fund
 - 2 Fixed Income and Mortgage Arbitrage
 - 3 Fixed Income Arbitrage Fund/
Excludes Investment Grade Corporate Securities
 - 4 Mortgage Arbitrage Strategy Only
 - 5 Convertible Arbitrage Strategy
 - 6 Convertible Arbitrage Strategy Only
 - 7 Distressed Securities Strategy
 - 8 Excludes Private Investments
- Notes (continued):
- 9 Excludes Direct Lending Investments
 - 10 Special Situations Fund
 - 11 Excludes Macro Investments

Source: Standard and Poor's

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