The Education Committee of

The Greenwich Roundtable

KNOWLEDGE, VERACITY, FELLOWSHIP

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THE GREENWICH ROUNDTABLE
PRESENTS

BEST PRACTICES IN HEDGE FUND INVESTING: DUE DILIGENCE FOR GLOBAL MACRO AND MANAGED FUTURES STRATEGIES

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About the Greenwich Roundtable

The Greenwich Roundtable, Inc. is a not-for-profit research and educational organization located in Greenwich, Connecticut, for investors who allocate capital to alternative investments. It is operated in the spirit of an intellectual cooperative for the alternative investment community. Mostly, its 200 members are institutional and private investors.

The purpose of the Greenwich Roundtable is to discuss and provide current, cutting-edge information on alternative investing. Our mission is to reveal the essence of both trusted and new investing styles and to create a code of best practices for the alternative investment industry.

The Greenwich Roundtable hosts monthly, mediated symposiums at the Bruce Museum in Greenwich, Connecticut. Attendance in these forums is limited to members and their invited guests. Selected invited speakers define complex issues, analyze risks, reveal opportunities, and share their outlook on the future. For the past 10 years, the Greenwich Roundtable has hosted some of the leading managers, scientists, and policy makers of our day.

The Board of Trustees, whose membership reflects a cross section of the alternative investment community, sets the direction of the Greenwich Roundtable.

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RESEARCH COUNCIL OF 2006

Three years ago we began a series of focus groups to tap into the knowledge of our members under the auspices of the Education Committee. We wanted to conduct original research apart from our symposiums and so we began the task of assembling best practices from the investors' point of view. However this assignment would require additional funding and our ability to raise funds was limited. Our regular membership is closed. The Bruce Museum cannot squeeze any more of us into their Gallery. Still we get phone calls and e-mails every day from hedge funds, from private equity funds and from leading industry service firms asking how they can support our work. Some of these general partners began making contributions even though we could not include them in the membership. They simply wished to support us with no strings attached. In some cases…anonymously.

In this spirit, the Research Council was born. Our Education Committee has been working as a group of altruistic investors who contributed their time and worked to raise professional standards. Then the Research Council emerged as a group of altruistic sell-siders who are helping investors document the allocation process…helping the buy-side raise their standards. The final result is intended to demystify alternative investing and to bring about greater understanding.

In 2005 our Board of Trustees named a small group of high integrity institutions for Research Council appointments. These wonderful managers have since launched us into a new orbit. Due Diligence for Equity Strategies was released in the summer of 2005 to the approval of investors, regulators, legislators, and the industry at large.

In January 2006, our Board again nominated candidates to the Research Council. We kept the group small to maintain our independence and limit our funding from the sell-side. Nominees were selected because their business activities serve as an example to all. Nominees were selected because of their sincere desire to educate investors and their belief in our mission. Once again the response was gratifying. And so we are pleased to announce the members of the Research Council of the Greenwich Roundtable for 2006.

Greenwich Connecticut has a long tradition of community involvement and altruism. We began with the hope that involvement would extend into the alternative investment community. We were not disappointed. Today the Research Council serves as a small group of sustaining sponsors of the research of the Greenwich Roundtable. Our purpose is to foster research and publishing in the field of non-traditional investing to better educate institutional and sophisticated investors. Dedicated to the development of best practices, members of the Research Council not only provide no-strings funding but they have also assisted the members of our Education Committee by rolling up their sleeves in the discovery and editing phases. The Research Council enables the Greenwich Roundtable to host the broadest range of investigation that serve the interests of the limited partners and investors. They also share our belief that education is one of the greatest needs in the marketplace. The Research Council has generously underwritten the entire *Best Practices in Hedge Fund Investing* series. They are providing it to you with their compliments. For that we are all deeply grateful.

Stephen McMenamin

RESEARCH COUNCIL

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"The Research Council enables the Greenwich Roundtable to host the broadest range of investigation that serve the interests of the limited partners and investors."

Introduction

Best Practices: Due Diligence for Global Macro and Managed Futures Strategies and its predecessor, *Due Diligence for Equity Strategies,* were written to help distill the primary aspects of hedge fund due diligence, structure the topics in a sensible order of importance and capture both the vocabulary and thought patterns that typically inform experienced investors. We worked especially hard to strike a tone of informed humility, resisting the compulsion to telegraph opinions and betray the kind of crude biases that can be so tempting in this kind of writing. We tried to delineate the intellectual terrain that is necessary to cover but frame each line of inquiry so that the conclusions would not always be foreordained. The substance and style of the writing, it was hoped, would reflect the experience and judgment of its collective authorship and invite salutary engagement with critical subject matter. In addition, we believe you will enjoy the comments in the margins from several symposia speakers over the last decade. In the final analysis, we hope that we have not disappointed with the latest edition of our *Best Practices* series.

Best Practices: Due Diligence for Global Macro and Managed Futures Strategies builds on its predecessor but reflects a spirited dialogue within the GR's community of active hedge fund investors that extends back to its 1995 inception. The fruit of this latest work reflects some important feedback and lessons learned from the first publication (i.e., "Equity Strategies"), a fact we were able to leverage in terms of refinements of core topics and in extending the network of people who could thoughtfully review the work. The Education Committee's membership ranges from experienced fund of funds managers to senior professionals at family offices, private banks and other investment institutions. Within this group, we were able to draw on a remarkable range of experience in different capital markets, finance, business, accounting, legal and regulatory arenas. This depth and range of experience proved critical to our results because it is ultimately "perspective" which is required to make accurate qualitative judgments of hedge fund professionals. In fact, this problem is at the heart of a due diligence exercise and it invites an important distinction: hedge fund investing is about investing in people—rather than in an asset class such as equities, bonds or currencies. Broadly speaking, pegging the psychological and emotional character of the hedge fund manager (and his/her team) may be the most enduringly difficult part of this process. This exercise is really the art of due diligence. In the end, we hope we have distilled a number of valuable investor insights and contributed some effective disciplines to address this insufficiently examined problem.

What are we trying to achieve with this latest iteration of the "Best Practices" series? Aside from the goal of educating investors, policymakers and students of investing, we hope that we have helped demystify a process which has been given an almost unrecognizably ominous portrayal in the mainstream press. We also continue to hold the somewhat immodest hope that

we can improve the quality of dialogue in the industry and contribute to an elevated standard of conduct for its participants. If we have succeeded in any small way, we will take no small pride in that achievement; to the degree we might have failed, we will try to learn from the experience and redouble our efforts in the future. With the GR's education programs and publications, we hope to influence positive change within the alternative investment industry—particularly through the setting of standards—as well as improve the potential for accurate portrayal by industry observers. There is indeed a measure of idealism in this and we think this is perhaps a part of what helps make our mission a little different. It is also, I believe, what has inspired people to get involved and help us with our work.

The discovery of fraud at Bayou transpired shortly after the publication of the GR's *Best Practices in Equity Hedge Fund Investment* and offers a valuable context in which to evaluate both the substance and purpose of our *Best Practices* series. We believe that, to the degree the *Best Practices in Equity Strategies* possesses virtue, it is because it reflects both a checklist and identifies lines of inquiry that are easily recognized as comprehensive and thoughtful by experienced investors. A longtime hedge fund investor once proposed to us that our comprehensive, qualitative due diligence questionnaire should be described as akin to a pre-flight "checklist" for a pilot. That seems true to a degree but also somewhat inexact as a metaphor. That is because a pilot's checklist is not a substitute for the flying lessons that preceded it. What was different about our questionnaire, we believed, was that it not only contained a checklist but it reflected patterns of inquiry that were meant to constitute valuable mental exercises for investors in and of themselves. It was a checklist, yes, but it carried with it a healthy diet of intellectual calisthenics too. Ironically, one of the lessons of Bayou was not just the need for alertness to the possibility of fraud but how many experienced investors believed their judgment and experience were sufficient to dispense with mundane checklists. By my count, a casual reader of our *Best Practices* document would have had between eight and ten points where they should have been alarmed enough to stop and intensively scrutinize what they were investigating or been comfortable stopping the due diligence process outright. As explained, the document contained a checklist and clear patterns of inquiry on the key subjects. However, it had an important subtext too. Be careful. Be focused and diligent. Exercise particular caution in areas where you are less familiar or uncertain. Do your own homework. Don't be rushed or shortchange your work for any reason. Let your investment conviction be built in calibrated work steps but always trust your gut in the end. These are the lessons of the Bayou debacle but they were also the "lessons" of the *Best Practices* publication which preceded it.

Lastly, I would be remiss if I didn't take appropriate time to thank the remarkable group of people without whom this document would never have been written. Put simply, the members of the Education Committee comprise a group of extraordinarily talented professionals and we owe them a significant debt of gratitude for their contributions and dedication in seeing this time consuming enterprise to its conclusion. *Best Practices: Due Diligence for Global Macro and Managed Futures Strategies* was a genuinely collective effort and the number of people who helped in some way are truly too numerous to thank. However, we owe an especially heavy debt to Nancy Solnik and Ben Alimansky (Co-chairs of the Due Diligence Working Group), David McCarthy, and Susan Benjamin and Steve McMenamin of the Greenwich Roundtable. This publication was researched, drafted and written only because of their indefatigable energy, vision, wisdom and leadership. We hope you will appreciate the result of this work.

Spencer Boggess
Chairman, Education Committee

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Definitions

The Global Macro strategy typically uses a broad analysis of economic, financial, demographic and/or social data or trends to identify investable themes, and ultimately enter positions. This type of analysis is usually referred to as "top-down" (versus "bottom-up") methodology. Top-down tends to start with statistics that refer to economies as a whole before drilling down to specific positions. Global macro funds focus less on stock specific ideas and usually trade in the major investment classes—global equities, global fixed income, currencies and commodities—that are expressed in instruments such as securities, bonds, spot or forward FX and/or a wide range of derivatives. Global macro funds typically use discretionary investment strategies relying on a decision-maker's judgment on timing, pricing and structure. However, some global macro managers may rely on quantitative models to assist their judgment. Global macro funds vary greatly in size and infrastructure. The largest and best known global macro funds may employ hundreds of people in offices around the world and incorporate multiple trading styles.

Managed Futures Funds are also known by their regulatory acronym, CTAs. Commodity Trading Advisors, regulated by the Commodity Futures Trading Commission, are similar to global macro funds only in that they both trade in the principle asset classes of global equities, bonds, currencies and commodities. For CTAs however, the instruments traded are almost always futures, spot or forward FX and options, though some of the larger CTAs are starting to use swaps on commodities. The main difference between global macro and CTAs is that most CTAs predominately rely on price data to make their investment decisions. In the large majority of funds, the entry and exit points are decided systematically by mathematical models developed by the fund managers. While managers may exercise some judgment in determining the parameters of their system, it is the model that tells them when to enter and exit positions in the various markets. By far the largest percentage of CTAs fall into the category known as "long-term trend followers."

"While the basis of analyzing these strategies will be similar to all other hedge fund strategies, there are both substantive and nuanced differences that investors need to consider."

I. Strategy, Investment Process, and Market Opportunity

Hedge fund investing covers a wide array of strategies and styles. Distinctive within the hedge fund universe is the area of global macro and managed futures (often referred to as "CTA") investments. In many ways, these strategies are similar to all other investment styles. That is, managers are trying to capture either directional or relative value price movements based on fundamental concepts of value and risk. But in their detail, these "trading" strategies do differ in some important respects, as the sections below suggest. For example, often the time horizon of these strategies is shorter than that of many other hedge fund investment areas. Also, a broader use of diversified global financial instruments is more frequently applied. Further, portfolio turnover, in keeping with strict management regimes, may be higher than some other investment styles. And, there can be a higher proportion of quantitative-based investment strategies than that of the broader universe of hedge funds. While the basis of analyzing these strategies will be similar to all other hedge fund strategies, there are both substantive and nuanced differences that investors need to consider. The sections below characterize many of these points

A. Overview

- How is the strategy best categorized? Is the approach discretionary, systematic, or a hybrid of the two? Are investment ideas driven by fundamental research, or technical analysis and quantitative models? How would you characterize the manager's trading horizon? Is the strategy long-term or short-term in nature? Does the strategy focus on a particular asset class or region?

  Does the manager focus primarily on developed markets, or a broader set of markets including emerging markets?

  Does the manager focus on a limited set of market instruments (e.g., FX or fixed income), or does the manager invest in a broadly diversified portfolio?

  To what extent are the manager's returns correlated to global equity markets?

- What is the manager's investment philosophy and what are the core principles that inform this strategy?

  The core philosophy may require some elaboration but the manager should be intellectually disciplined enough to articulate it in a clear, concise and easily understandable way. For discretionary macro funds, it is important to ask the manager his current macroeconomic outlook, the economic or trading basis of those views, how individual strategies will be implemented in the portfolio, and when?

  For systematic strategies, it is important to understand the theoretical basis of the models, the history of their development, and the manager's background and experience in developing and evaluating complex quantitative models. In particular, what market "behavior" or inefficiency are the models attempting to capture?

- What professional experiences were instrumental in the manager's development of his investment philosophy or approach?

> "The core philosophy may require some elaboration but the manager should be intellectually disciplined enough to articulate this in a clear, concise and easily understandable way."

I. Strategy, Investment Process, and Market Opportunity (cont.)

"For systematic strategies, it is important to understand the theoretical basis of the models, the history of their development, and the manager's background and experience in developing and evaluating complex quantitative models. In particular, what market "behavior" or inefficiency is the model attempting to capture?"

If the fund is a new launch, it is important to understand how similar the current strategy is to the manager's past investment experiences. Does the manager still have access to the same research, data and information, systems, or customer flow that he had in the past? Is that information and infrastructure vital to the manager's success?

Discretionary global macro managers must often hire consultants and other experts to offer specific and detailed research and viewpoints. Does the manager still have access to these resources?

It is important to address both positive and negative experiences as they relate to the portfolio manager's history. Has the manager experienced trading difficulties at other firms prior to starting this fund?

- In which countries or regions does the manager invest?

Beware of the reduced liquidity and latitude for hedging in certain markets, including emerging markets where shorting is either limited or not permitted.

- What specific securities and markets does the fund trade? Do the key investment professionals possess the specialized knowledge and experience to invest successfully in the identified securities and/or markets?

While both global macro and managed futures strategies typically invest across a broad range of asset classes, including fixed income, equities, currencies, and commodities, the two strategies tend to differ substantially in terms of the instruments they use to implement their strategies. Discretionary macro managers can trade any listed or OTC instrument. They trade individual stocks, indices, futures, cash bonds, swaps, options, and other derivatives – a broad mandate. Often times, global macro managers suggest that the way they structure trades constitutes an "edge." By contrast, managed futures funds generally have a narrower focus with regard to instrument selection. They tend to trade only futures and foreign exchange and commodity swaps.

Be careful of the lack of liquidity with some OTC instruments and derivatives.

With regard to commodity traders, know whether a manager will ever take delivery of the physical commodity and how the manager will handle issues such as warehousing and inspection.

Make sure there is a clear separation between execution and custody of the asset (re Refco).

- What are the best environments for the strategy? What are the worst environments for the strategy? Provide examples of each. To what macroeconomic factors is the strategy most/least sensitive?

Is the strategy attempting to capture market trends, market volatility, or some combination of the two? Is it sensitive to long-term market behavior, short-term market behavior, or neither -- and why? If discretionary, does the manager do best in flat, rising, or falling markets?

- How has the current strategy evolved over time? What factors might cause the strategy

to be altered—however subtle these changes might be? What is the manager's vision for how the organization can continue to improve over time?

When analyzing changes to strategies, it is important to assess the scope of the change. Is it a refinement of an existing strategy or an expansion into new areas? If it is an expansion, how has the expertise for this extension been developed? Will the manager be making new hires? Does the firm have the appropriate operations and infrastructure to handle the expansion? Is the firm missing certain systems or operations that may be important or crucial to its success?

Be careful of "style drift." In particular, try to assess if the manager has fundamentally changed his strategy to accommodate an undue increase in assets or to capitalize on perceived opportunities in which he has little expertise. Or, is the manager making logical adjustments to a changing environment that is still fundamentally consistent with his investment philosophy?

Style drift is harder to identify in global macro because this strategy encompasses a broad investment mandate. Global macro is typically opportunistic in nature. Therefore, it is much easier for macro managers to make a case for adding or removing market instruments and trading styles. When analyzing style drift in macro funds, it is important to determine whether the manager's investment approach has changed and, for example, what percentage of the fund's profits and/or losses do these new strategies account for?

One measure of style drift to watch is the degree of realized volatility for the strategy. Is the manager taking more or less risk over time? Why? Does the current investment profile of the fund seem justified given the manager's expressed views of the market?

For a global macro manager, be sure to discuss key personnel changes. Who are the new team members – what is their focus, previous track record, biographies, risk allocation and trading authorities?

With regard to managed futures funds, review new systems closely. Are these new systems simply revisions of older models or has the manager added models with different time frames and/or approaches? Again, the key consideration here is the overall impact these systems have on the portfolio. Do they materially change the horizon or asset mix of the manager's portfolio? To what extent has the manager stopped using systems in the past? On what basis has this decision been made? Do the current group of systems reflect a "survivor bias?"

How does the manager plan to introduce new systems to the portfolio on a prospective basis? What is the process for allocating capital to new systems?

- How unique is the strategy? Does it attempt to exploit persistent market inefficiencies or is it a less viable longer term strategy? What is the hedge fund manager's "edge?" How does the manager in his own words, differentiate his fund from that of his competitors?

"Style drift is harder to identify in global macro as this strategy encompasses a broad investment mandate. Global macro is typically opportunistic in nature. Therefore, it is much easier for macro managers to make a case for adding or removing market instruments and trading styles."

"For systematic approaches in particular, part of the manager's competitive advantage may be dependent on his quantitative and technological resources and capacity for innovation. As an investor, do you understand this "edge" and how is it sustained over time?"

Try to assess how genuine a manager's edge is. Is the edge intangible (i.e., instinctive) or derived from a mix of experiences or a certain quality of experience that can be articulated? How is the edge different from that of other major competitors? How sustainable is this edge?

For both global macro and managed futures, it is important to assess the strategy's barriers to entry. Is the strategy focused on a limited set of opportunities in terms of time and/or the absolute state of the investment universe? How much capacity does the manager realistically have (e.g., a manager trading only physical commodities will have significantly less capacity than a manager who actively trades financials as well as commodities)? If the manager has been around for a long time, what has the manager done to maintain his "edge" over time?

For systematic approaches in particular, part of the manager's competitive advantage may be dependent on quantitative and technological resources and capacity for innovation. As an investor, do you understand this "edge" and how is it sustained over time?

For discretionary global macro, the edge could be the team and their "information advantage" (e.g., information sources, consultants) over the broad market. Do you understand this "edge" and how it is sustained over time?

How does the manager attract and retain the appropriate resources to provide this advantage?

- Which indexes or group of peer investment managers may be most appropriate to understand the market dynamics relevant to the strategy? Are there certain indexes or strategies that might be ideal for "benchmarking" purposes?

While there are a number of managed futures indices, some of which provide daily prices, benchmarking is more difficult for global macro given the wide range of strategies that fall under this category.

B. Investment Process: Idea/Trade Generation

- What is the process for generating investment ideas or the selection and implementation of trades?

Discretionary Global Macro

– How does the manager approach investment research?
– How are potential positions identified or screened?
– Are quantitative models or software used as a decision input?
– To what degree does the manager use primary research (and/or consultants) and how rigorous does this effort appear to be?
– What is unique about this approach to research?
– What capacity does the manager have to generate, consistently, a truly original investment thesis?
– How do managers develop research ideas in concert with less experienced analysts?
– Or, more broadly, how does the manager leverage the capabilities of all investment professionals involved in the research process?
– Does the manager plan to add or remove individual profit centers over time?

I. Strategy, Investment Process, and Market Opportunity (cont.)

Managed Futures /Systematic Trading
If the fund is systematic in nature, it is important to ask the following questions:

- Who designed the systems?
- Were they built internally or externally and who owns the rights to the program?
- Was the system optimized (i.e., built by selecting what would have worked best over some past period)?
- How much time and money does the fund spend on system improvements?

Other questions about systems that should be included:

- What are the time frames of most systems?
- Are the systems "trend following" or "mean reverting" in nature? More specifically, what types of systems are employed?

- statistical probabilities
- moving averages
- breakout systems
- pattern recognition
- neural networks or artificial intelligence
- oscillators
- cyclical analysis
- multifactor analysis
- counter-trend systems, or fundamental/economic analysis

- What is the explicit goal of the system's optimization techniques (e.g., profit maximization, drawdown minimization or Sharpe ratio)?
- How does the manager run simulations on models? What sort of stress testing has been done?
- Have the models ever been tested using "out of sample data" (i.e., data not utilized in developing the models)?
- What has been the success rate in model development (i.e., how many have they rejected and why)?
- Have the same models been used across assets or are different models used for each asset class?
- Have the models employed volatility filters?
- Does the manager have a research department continually testing new ideas or is the system static?
- How are new systems implemented in the portfolio?

- Review current and historical investment examples. Ensure that these examples represent a broad mix of investment outcomes (i.e., good and unfavorable).

Do the examples tie in with your understanding of the manager's philosophy and perception of an investment "edge?"

It is also important to understand these examples in the context of any important risk-management disciplines (sell discipline, position sizing, country, currency, industry and issue exposure limits) that have been articulated.

For managed futures, ask the manager to walk you through historical examples of how the system(s) made and lost money and speak specifically about why the system behaved as it did in each instance.

- What professional mistakes have been instructive for the portfolio manager? Try and identify what led to those mistakes and if there are changes needed to rectify those mistakes. Are any "lessons" reflected in current investment practices?

- Identify favorable and unfavorable historical periods for the strategy, paying particularly

"The key to successful investing is finding 15 good, uncorrelated return streams. Diverse return streams reduce your risk by 80%. Diversity increases the consistency of your returns. A group of hedge funds has their own inherent beta. Most practitioners of a given strategy tend to track each other based on the opportunities available to all. Look for managers with unique insights."

Ray Dalio, January 15, 2004

close attention to market events that had a significantly negative impact on the strategy. Review samples of positions during those periods and scrutinize how the fund performed during those periods. If information regarding the fund is not available for those dates, understand where the shocks occurred (e.g., markets, instruments, leverage, liquidity) and try to probe the manager on a "what-if scenario" basis.

Has the manager ever changed his investment thesis or approach to respond to particular challenging markets? This applies to both systematic strategies and discretionary global macro. What was the basis for these changes, what was the rationale and what was the outcome?

Is the manager a "pontificator?" That is, does the manager stay with a core macroeconomic thesis even though the price action does not support the position? How is risk managed in such a situation?

"While it is not necessary to have written rules, it is important that the manager have a disciplined approach to risk management."

C. Portfolio Construction

- What is the overall approach to portfolio construction?

Once a discretionary macro manager develops themes and establishes trade ideas, the manager must determine how each of these pieces fits together in the context of the portfolio. This part of due diligence should aim to determine how the manager sizes positions.
For managed futures, portfolio construction is systematized. However, it is important to understand how models allocate capital both to markets and specific positions. Are there any manual overrides? Is there any discretion with regard to broader portfolio breakdowns?

- What are the current position and exposure ranges for the fund? What have been the historical limitations and minimums in terms of position sizes and exposures? Consider leverage, VaR, position size, and regional and asset class limits.

Has the manager ever exceeded these limits? If so, in what context did this occur? Are limitations noted in the offering memorandum?

Has the manager ever changed stated exposure or risk limits? Why?

Seek to understand the way in which the manager will likely deploy capital in favorable, typical, or unfavorable market environments for the strategy. Review the way the manager deploys capital in different volatility conditions (rising but stable, rising and chaotic, declining).

- How does the manager size positions? Is there a maximum amount of capital the manager will allocate to any one theme or trade?

Are themes/positions weighted according to conviction, volatility, risk/reward, or contribution to the overall portfolio risk?

Are trades sized inversely to volatility? Is the manager's volatility target realistic or does controlling volatility too much inhibit the manager's ability to participate in mar-

kets that may appear choppy but have an underlying trend over the long term?

- What is the typical number of positions in the portfolio?

  How many of the positions are really material to the portfolio? Is the number of positions realistically manageable? How correlated are these positions?

  In the case of macro, it is not necessarily important how many trades are in the book, but rather how correlated these trades are. At times, you will find managers say they have multiple trades, but these are simply different ways of expressing the same view.

  Try and understand the degrees of risk created by position concentration, especially in less liquid markets; alternately, try to understand the analytically dilutive effects of an over-diversified portfolio—the risk of not knowing the portfolio as well. Do you sense that the number of positions in the portfolio is a function of the assets under management and less driven by a "risk management" discipline? Has the portfolio's exposure shifted as the AUM increased (i.e., increased exposure to financials coupled with decreased commodities exposure as AUM increased)?

- Does the manager monitor correlations among trades and themes?

  Is the manager sensitive to potential shifts in correlations during periods of market disruptions? A great deal of investor money can be lost if "all correlations go to one" during a crisis. Is the manager using any long-dated options to mitigate losses in periods of major disruptions? Be especially sensitive to global macro managers, as there may be fewer risk controls for diversification.

- To what degree is leverage employed in the portfolio and in what context?

  What are the historical average, maximum, and minimum leverages used by the manager? What particular environments or circumstances would prompt a reduction or an increase in the use of leverage?

  How does the manager define leverage, especially in the context of futures and options (e.g., market value, face value)? Managed futures strategies tend to view leverage as margin-to-equity. Discretionary macro managers typically describe their leverage as a percentage of assets under management.

  Is the leverage appropriate for the markets being traded? For instance, some markets are illiquid and highly volatile. Is the leverage consistent with the portfolio's return target?

D. Trading

- Who makes trading/execution decisions? Who is the back up?

  Is there separation between the portfolio manager and the trader(s)? Who reviews and oversees trades? Does the trader only execute trades, or does he have some portfolio management authority over a prescribed carve-out of capital? How does the fund avoid the problems that can arise from having multiple traders? If the trader's role is primarily execution, how much flexibility is there with

"Pay close attention to slippage. Slippage, the amount the fund moves the market adversely when entering orders, is one of the greatest single risks to performance. Do they track their slippage costs? How do they prevent information slippage?"

> "Does risk management include a stop-loss policy?"

regard to the timing of trades?

Pay close attention to slippage. Slippage, the amount the fund moves the market adversely when entering orders, is one of the greatest single risks to performance. Is the execution team experienced? Do they have multiple lines of access into the various markets they trade? Do they track their slippage costs? How do they prevent information slippage?

- Do they scale into trades or tend to put on full positions at once? Is this reflected and congruent with the manager's position sizing guidelines.

- Are there systematic or quantitative elements to the strategy? If so, what are they and how were they developed? When is the manager's judgment sufficient to "override" such a systematic or quantitatively driven investment discipline? For instance, some managed futures funds may override their signals in certain circumstances (i.e., before an important report or during a crisis). Have any exceptions occurred in the past?

- Are there different types of positions such as "core" and "trading" positions? What is the difference between the two types of positions in terms of sizing, risk tolerance, and liquidity?

- What is the average holding period? What is the annual average turnover of the fund? For managed futures, discuss the manager's roundturns per $1MM. Please note: The greater the roundturns, the greater the potential for slippage.

- Understand the sell-discipline. How and why are positions sold? How important are catalysts? Does the manager or system trade with price targets?

Understand the portfolio manager's tolerance for losses. How much "pain" will the manager endure before liquidating? What is the manager willing to lose in a position before cutting it back, or in the portfolio before reducing total leverage? For discretionary traders, "getting married" to a position or a story is one of the most common reasons for incurring a substantial portfolio loss. Another interesting question to assess a "worst case scenario is:" How much would be lost if he is stopped out of all positions and the value of all options was zero (essentially they lost the premium paid)?

Understanding the risks a manager is willing to take if he is meaningfully profitable or unprofitable for the year is extremely useful. Some discretionary trading-oriented managers (and strategies) will tend to "press their bets" when they are up, and invest more conservatively when they are down. For macro managers, ask them to describe their thoughts and feelings during periods of losses.

- Is there a "stop-loss" policy? How is it executed? Does the manager ever change or remove these stops during volatile periods? Are stops adjusted for price appreciation?

Strict stop-loss policies are common among discretionary macro managers. Stop-loss and other risk management policies are typically embedded in the models of managed futures strategies. If a manager uses position

and portfolio level stop-losses, how do they decide if and when to re-engage positions?

- How is new capital deployed? Is there a trade allocation policy among different funds and managed accounts? Is there a process of liquidation to meet redemptions? What is it?

E. Market Opportunity

- What is the breadth of the investment universe that the manager's strategy will target? How diverse or liquid are the assets, sectors, or regions targeted for the strategy?

- Where does the manager propose to cap the fund's assets? Why is the manager comfortable at that proposed level? What is his best estimate with respect to what the market can absorb? Given the investment universe, how much money can be managed without detracting from returns?

As a benchmark for the appropriate size of the fund, consider the asset size of other successful funds that employ the same strategy.

Be aware that many managers have a core competency in a given market. While a CTA may trade 50 markets, 30 of those markets might be global interest rate markets. A discretionary manager may trade a diversified portfolio, but an attribution analysis could show that a large percentage of the fund's profits come from currencies. The actual portfolio diversification may be less than a cursory review might suggest.

- What conditions are favorable to the strategy? What are the current conditions for the strategy?

  How much money is currently flowing into the strategy? Is the strategy congested? Are the trades crowded? Is there any reason to suspect that it is poised to suffer from diminished returns going forward?

  What are the manager's expectations in terms of return and risk in the current market environment and over the short term (e.g., six months)?

  What are the manager's longer-term expectations (over a market cycle, e.g., three years) and how is this justified? Are there markets that are particularly positive or negative for the strategy?

- To what degree can the strategy be understood to have "cycles?" Where is the cycle today?

Beware of conspicuous outperformance when the strategy is concluding the most attractive segment of an investment cycle. Don't confuse good fortune with alpha generation.

- What market factors or combinations of factors may be particularly challenging for this strategy? Are there certain points in an investment or economic cycle that would pose particular challenges for a successful execution of the strategy? Does the manager have experience navigating through such environments in his current strategy incarnation?

- To what kind of external shocks is the strategy most vulnerable? How did the manager

"Managed futures managers are agnostic and don't care why things happen. Most styles run in 3-4 year cycles. It takes years to collect fund managers who are consistent."

Barry Bausano,

February 20, 2003

I. Strategy, Investment Process, and Market Opportunity (cont.)

"CTAs fall into four styles. Trend-followers are highly homogeneous, act in a similar manner to each other and conduct technical analysis. Global macro managers look at relative strength between currencies & countries and make trades on a discretionary basis. Systematic non-trend managers are trend followers who aren't correlated to each other. Relative value managers using currency and commodities are heterogeneous, operate in different markets and do not correlate with each other. If managed futures are 5-10% of your portfolio, you'll need 12-18 managers to capture the benefits of the class."

David McCarthy,

February 20, 2003

perform in difficult market environments such as the Summer/Fall of 1998 (i.e., Russian Devaluation and LTCM Crisis) and September 11, 2001?

- Is the strategy long or short volatility? To what extent does low or high localized volatility create profitable trading opportunities or increase the chances of stop losses being hit?

II. Team and Organization

Hedge funds, especially global macro and managed futures, are often viewed as "alpha" generators. The ability to earn this alpha over time results directly from the quality and strengths of the founder(s) and their organizations. These "trading" hedge funds were started by entrepreneurial leaders. Some of these firms remain small and entrepreneurial, either by choice or circumstance. Some have evolved into large, deep, and, sometimes, complex organizations. Understanding the nature of these organizations, the skills of the professional investment and management staff, and even the iconoclastic nature of the founder(s) is an important step in hedge fund investing. Running a successful discretionary global macro hedge fund is different from putting on a successful trade in the well-supported trading room of a large investment bank. Implementing a successful model-driven strategy is not the same as researching market inefficiencies on a computer. Successful global macro and managed futures hedge funds will always reflect the experience and background of its founder(s) and current principals. A successful investment process will reflect not only a unique and clever trading idea or market theme but will also reflect the strengths and stability of the team implementing the strategy. Consideration of both the individuals central to trading in these hedge funds and the entire implementation and support infrastructure are critical steps in the investment process.

A. Key Investment Professionals

- Review the academic training and professional background of each of the key investment professionals. Carefully assess the quality of work experience of those individuals. Note that individuals' backgrounds may be quite varied in the CTA and global macro space. This is based in part to history, in that there are a handful of experienced managers who have been in the business for many years and who grew up, perhaps trading commodities, instead of working for a traditional investment banking organization.

- Is the length and depth of work experience appropriate? Do the principals have any hedge fund experience?

Does the experience of the principals suggest they will be successful in the execution of their current strategy? Be careful with managers who recast or re-invent their skill set based on market demand.

Does the manager have any prior performance record that can be shared? Is the performance/track record relevant for the strategy you are trying to evaluate?

- What were the circumstances that caused them to leave their previous positions? Are there any non-compete or legal issues from previous positions?

If relevant, is their former employer investing in their current fund? If not, why? Keep in mind there are circumstances where an investment by a previous employer may not be appropriate or even desirable. Is the previous employer a reference?

- How are investment and business decisions made by the firm's key principals? What is the structure for investment decision-making versus operational decision making and business management? What kind of input do other investment professionals and senior back-office professionals have in their respective areas of responsibility?

"Understanding the nature of these organizations, the skills of the professional investment and management staff, and even the iconoclastic nature of the founder(s) is an important step in hedge fund investing."

II. Team and Organization (cont.)

> "Try to understand whether the proper incentive structure exists for both principals and employees to pursue investment success in a productive way that meshes with your common investment objectives."

- Has the team worked together in the past? Do the skills of the investment team appear to complement one another? Is there a skill set or role that is missing?

- Does one of the key principal(s) have CFO, operational, or investor relations experience?

  An experienced COO or CFO can reduce significant business distractions and allow for the fund manager's enhanced focus on profitable investments.

- What is the policy for personal trading accounts? What is the process for reviewing personal account activity? Who reviews it and how often?

  If trading is permitted, are there any limits placed on the amount of time spent and the kinds of instruments traded? What instruments are traded separately from fund activities? Is there a potential for any individual to "front-run" the fund's trading or investment activity?

- Assess the personality and the character of the team members with respect to their integrity, attitude, work habits, reputation, and expectations for success.

- Have any of the fund principals ever been involved in a lawsuit? Do any of the fund principals possess an official disciplinary record (pending or past)? Have there ever been any regulatory infractions, fines or suspensions from any regulatory agency or professional organization? What are the details?

  Do any of the fund principals have a criminal history?

- Are key investment professionals' incentives aligned with the overall fund? What are their personal capital commitments? Of the entire staff, what percentage of their net worth resides in the management company and in the strategy? Will the portfolio manager communicate a reduction in the level of personal investment held in the fund? If so, how?

  Alternatively, for more long-standing fund managers with very substantial sums invested, does the current fee structure create potential disincentives for appropriate risk-taking? In other words, are limited partners in danger of paying for a very expensive form of cash management? Have former "alpha- generators" turned into mere "asset gatherers?"

- How are investment professionals compensated? To the degree possible, review compensation for all investment professionals.

  Try to understand whether the proper incentive structure exists for both principals and employees to pursue investment success in a productive way that meshes with your common investment objectives.

- Is there key man risk? What happens if the portfolio manager becomes incapacitated or dies? Who has the ability to fill in on a short-term or long-term basis? Is there a liquidation process pre-arranged for extraordinary events? How long would such liquidation take? What would the impact of this liquidation be on the portfolio and on the markets in which the manager invests? Is there key man insurance?

B. Founders and Principals

- Are the founders/principals the key investment professionals? What is their level of involvement in the firm/fund?
- Have there been gaps in their professional history? Have there been failed funds or other ventures?

Be wary of unexplained gaps in resumes in general. In addition, be wary when failed predecessor funds are involved. Discover specifically what happened and understand what the manager may have taken from the experience. Although failure can be instructive, multiple failures or a string of brief professional stints are indeed a "red flag."

C. Staff

- How many staff members are there? What is the ratio of back-office to investment professionals? Review (or sketch out) an organizational chart.

- How many investment professionals are on staff? Review their biographies. How long have they been employed by the firm and in the industry? Has there been a pattern of organizational turnover?

A significant number of new staff can require time to work effectively together and such a phenomenon can influence the effectiveness of an investment organization.

Beware of heavy turnover at either senior or junior staff levels. Portfolio managers who seem unable to preside over a stable organization should be evaluated with greater scrutiny. The ability and commitment to keep talented professionals and employees who have been encouraged to develop their skills should be evident. An inability to do so may in fact be a sign of a congenitally poor business and/or personnel manager. It also may reflect an unhealthy ego on the part of the principal. Broadly constructed, these circumstances can breed employee disloyalty, turnover, and possibly elevate key man risk.

- Does the firm conduct background checks/reference checks on new employees?

- Is the depth of the organization sufficient for the assets under management? What are the growth plans for the fund and the organization as a whole?

It is better to grow assets into infrastructure than vice versa.

- Are there any branch offices?

While branch offices for a large research team may be beneficial, long distance "portfolio management" has shown a less compelling track record of success. Portfolio management by principals in disparate branch offices often suffers from poor communication and isolated decision-making and can even create conditions for rogue trading.

- Regardless of the size of an organization, who is responsible for the following function?
  - CIO
  - COO
  - CFO[1]
  - Research
  - Trading/Risk Management
  - IT/Systems/Programming
  - Operations/Back Office/Audit
  - Compliance/Legal
  - Marketing/Investor Relations – are these separated?

"How do you buy a global macro manager? Everything begins with the anomalous viewpoint. Can the manager find an idea that is not commonly known? Original ideas come from unusual places. They tend to last for 3-6 months. Ideas, while seductive, are only tools to extract profits. The idea needs a catalyst that will force the market to see it in the next 1-2 months. A year is too long to wait. Getting in the habit of seeing the opposite viewpoint makes it easier for the manager to exit his position when the appropriate time comes."

Dan Tapiero,

January 15, 2004

[1] Among larger hedge fund organizations, a higher standard for this skill set probably should apply. For, example, do any key professionals possess treasury or cash management skills? Do any professionals have experience actively managing asset-liability "gaps?"

To the degree possible, separation among key professional functions (i.e., COO, CIO, CFO, Marketing, and Compliance) is better. Greater separation of duties can enhance the long-term vitality of a hedge fund. It can also help reassure investors that multiple sets of unrelated eyes are watching over the business and the portfolio. In the case of trading versus broker/position reconciliation, separation of duties is vital.

Try to understand where the range of professional responsibilities naturally lies in whatever size organization you are attempting to assess. Specifically, try to understand how smaller organizations concentrate the number of professional responsibilities managed by key individuals. This can represent a potential "hidden level" of investment risk.

Under-qualified employees in key roles and/or nepotism in the hiring of personnel for key organizational roles should be viewed with caution.

Are there back-up provisions in place for key functions/people in case of the unexpected departure of a key employee?

"Not to be trite, but if it sounds too good to be true, it probably is."

III. Fee Structure and Terms

One often hears that "talent doesn't come cheap." There is no doubt this applies as much to hedge funds as other areas of commercial life. But while there is similarity of terms across many hedge funds, there is no uniformity. Hedge fund terms can differ considerably upon subscription to a fund, while an investor is in the fund, and upon redemption from the fund. Differences exist in fees managers charge (e.g., management and incentive fees), in service provider costs (e.g., administrators and custodians), and in other direct or indirect costs of the hedge fund (e.g., commissions, items being charged to the fund itself). Further, there can be substantial differences in liquidity terms—how often one can redeem, constraints on the amounts of the redemption (e.g., "gates" applied at either the fund or investor level—or both). And, charges may be imposed on investors redeeming within specific periods of time. Some of the differences reflect important underlying investment issues that should be understood (e.g., liquidity of the investment strategy). But, in any event, investors need to familiarize themselves with the particular provisions of each fund and be assured that the fund's terms are consistent with their time horizon and with their sense of fairness and fair value. The section below outlines some of the issues to consider in this area.

- What are the management and incentive fees for the fund that is being evaluated? How are these fees calculated and accrued?

  Are the fees for this fund appropriate given what other similar funds charge?

  How often does the fund pay itself fees? Annually or quarterly? Does the fund use a "rolling clawback" for its fees?

  How does the portfolio manager make use of his management and performance fees? Is the management fee invested in the business?

  Who participates in the "carry," and to what degree are less senior professionals incentivized to contribute to the investment success of the fund? Is this expected to change over time?

- How many share classes are there for each fund? If there is more than one class, what are the various fees and terms for each class? Are there different fees and terms for onshore and offshore investors? Are the employees of the fund subject to the same fees and terms as outside investors?

  Does the class structure allow one class to inherit risk of the other? Do cross-liabilities exist between the classes or funds? For example, does the class with lower leverage assume the risk of the higher leverage class?

  Try to appreciate the character of the strategy's liquidity relative to the liquidity of the different share classes and how much capital resides in each share class. Is the bulk of the capital principally invested in one share class? What are the implications for the stability of this fund's capital base?

- What expenses are charged to the fund, in addition to management and performance fees?

  Standard fees usually include items like administration, audit, and other professional expenses. However, a manager sometimes will expense the entire firm's overhead including travel and entertainment, rent, and salaries and bonuses to the fund. If this is the case, get an understanding of what the percentage charge to the fund has been in prior

> "Investors need to familiarize themselves with the particular provisions of each fund and assure that the fund's terms are consistent with their time horizon and with their sense of fairness and fair value."

years. Is it in line with industry standards? Are you willing to accept this?

- Is the manager incubating new or separate strategies at the expense of current investors?

Sometimes a large fund will begin to incubate start-ups to access emerging talent (and to develop a promising sub-strategy that can help diversify firm capital) or have the proximity of a talented individual who could not be persuaded to become a regular employee. If this is the case, what is the fund's arrangement with the newly incubated manager strategy and has the larger fund informed LPs as to how they are compensated?

- Is there a high-water mark or hurdle rate? How are they calculated? Is the high-water mark "reset?"

Ask what percentage of assets are "underwater" and for what period of time they have been underwater. If the fund has experienced a drawdown, how much performance does the fund have to accrue to earn performance fees? If this is an unreasonable amount, beware of the built-in temptation for a manager to "swing for the fences" and risk even more substantial capital losses.

- What is the liquidity/redemption policy? Lock-up? Notice period? Is the liquidity provision for investors consistent with the liquidity of the underlying securities of the fund?

Beware of funds that give unduly accommodating liquidity terms to investors when the underlying assets are not highly liquid. Ask if any investors have side-letters with more forgiving liquidity terms. If so, in a liquidity crunch these investors will have an unfair advantage.

- If there is an early redemption fee, is it payable to the fund or the management company?

The fee should be payable to the fund, not to the management company.

- Have there been any prior liquidity suspensions? Are there pending changes to the redemption policy?

- Is there a "key man clause" granting a special redemption right in case the portfolio manager or other vital employee (system designer in the case of managed futures, perhaps) were to die, become incapacitated, or depart the firm?

- How would the fund be liquidated under such circumstances?

- If not yet registered with the SEC, does the firm intend to register? If not, what is the basis for this decision? Has the firm changed liquidity terms to avoid registration? If so, what is the rationale?

- If the advisor is a registered investment advisor (RIA), has the firm built an appropriate compliance infrastructure? Describe what procedures are in place for employee trading, data and document retention, and monitoring of communications.

- Ask if you can have a copy of the firm's compliance manual. Does one exist?

- Meet and speak with the firm's CFO and COO.

IV. Risk Management

Much of the professional discussion of hedge fund investing centers on investment risk. What markets are the fund invested in, what is the process for sizing trades, and what are the appropriate measures for identifying and monitoring portfolio risk? Questions such as these receive considerable and appropriate attention. And, it is clear (as evidenced by the section below) that there is no single and simple metric to answer these questions. Hedge fund strategies differ across a number of dimensions, and risk measurement and analysis are best suited to particular circumstances. The successful investor in hedge funds will focus considerable time on these issues and use discussion of them with the manager as an important step in understanding the manager's specific strategy. But these questions cover only a portion of the risk of investing in hedge funds. Just as critical, is a process for considering and reviewing other risks inherent in these investments? Often referred to as "operational risks," these encompass a wide range of issues, including but not limited to, the capture and pricing of investment positions, the integrity of position reconciliation and the performance reporting process, and counterparty credit risks in hedge funds. The points below direct investor's attention to the variety of risk issues to be considered.

A. Portfolio Risk

- Invite the manager to articulate his risk management philosophy.

  Risk management may vary considerably between discretionary macro and managed futures managers. For discretionary macro managers, risk management is often a separate function; whereas for managed futures managers, risk management is often embedded in their models. In such cases, it is important to understand how various risk management tools and measurements are integrated into a fund's systems.

- How does the manager gauge risk? What risk measures are used internally by the hedge fund manager? Which measures are most important? How often are these risk measures calculated? Are they calculated internally or by an external vendor?

  Does the manager measure risk in terms of volatility, leverage, or in some other fashion?

  Does the manager conduct statistical calculations, such as Value at Risk (VaR)? If so, what type of VaR is used?

- Does the manager stress test the portfolio? If so, under what conditions? What assumptions are made?

  It is important to remember that various risk measures might understate risk during periods of low market volatility. Stress testing and scenario analysis help gauge portfolio risk during periods of high market volatility and high correlations. They provide a more accurate picture of potential losses in difficult environments. In essence, they help gauge "tail risk."

- Does the fund have an individual who is responsible for risk management?

  What training has this individual had? What other responsibilities in the firm does this individual have? What is the scope of this individual's authority? Does the risk manager have the independent authority to liquidate positions if risk guidelines are violated?

> "Risk Management can be a source of alpha. It is not a guarantee in a structured-finance sense but a process that can add value."
>
> Andrew Lo, April 30, 2002

IV. Risk Management (cont.)

> "We are risk aware, not risk adverse. Theoretical relationships have had little predictive power. The real value comes from manager selection. We seek funds that are rich in idiosyncratic risk. But over-diversifying them tends to remove a fund's uniqueness. Regarding transparency, global macro funds tend to be opaque. Managed futures funds tend to be transparent."
>
> Richard Horwitz,
>
> July 18, 2002

- Is the risk management function independent from the investment function?

With systematic strategies, portfolio liquidation is usually automatic.

With discretionary macro, an independent risk manager can sometimes mean the difference between exiting a losing position and overplaying a bad hand.

- Does the manager have written policies and procedures that communicate an approach to risk management?

Obtain a copy of any relevant documentation or procedures. Make a detailed review that includes operational, liquidity, and counterparty risk.

While it is not necessary to have written rules, it is important that the risk manager have a disciplined approach. If the manager says he cuts risk when VaR losses reach a certain level, make sure that is actually the case in practice.

- If the manager is systematic, determine whether or not the manager would ever override those systems (in the event of war or terrorist attacks). Ask the manager to provide examples of where this has happened in the past.

- Which portfolio, market, factor, or security-specific risks are most relevant to consider? Are there particular risks in specific types of investments or trades? The list is not meant to be comprehensive but it may serve as a rudimentary point of reference:
  - Equity Market Risk
  - Interest Rate Risk
  - Foreign Exchange Risk
  - Credit Risk
  - Basis Risk
  - Liquidity Risk
  - Concentration Risk
  - Correlation Risk
  - Volatility Risk
  - Counterparty Risk
  - Leverage

- Does the manager monitor position, sector, or regional concentrations?

While the systematic nature of managed futures strategies often forces diversification, the discretionary nature of global macro investing often provides considerable latitude to allocate capital. Try to determine how much risk the manager might place in a single trade, region, or asset class. Are there any rules that might prevent the manager from "betting the farm" on a single trade or theme?

- Does the manager monitor correlations among trades and themes?

A manager may appear to have a diversified book if he holds a number of trades in different markets. However, it is important to assess whether or not these trades are all implicitly expressing the same view. Correlation analysis can help determine the true diversification in a portfolio.

Is the manager sensitive to potential shifts in correlations during periods of market disruptions?

- Does risk management include a stop-loss policy?

Are stops used at the individual position level, the portfolio level, or both?

On what basis are stop-loss levels determined: price, time, volatility? How are stop-loss levels adjusted and how often?

If stop levels are hit, how does the manager reduce positions? Is it a gradual process or are positions immediately closed out? If the stop is a portfolio level stop, how does the manager determine which positions to cut? Are only losing positions cut or is risk reduced across the entire portfolio?

After losses, are position sizes reduced to reflect the lower AUM or are positions constant? If positions are not reduced after losses, then “bet sizes” are actually increasing relative to the decreased asset base.

- To what extent does the manager trade derivatives? What type of instruments (e.g., swaps, futures, simple options) or exotics (barrier options, knockin or knockout options)? How are these instruments modeled and marked? Focus on the nature, liquidity, and trading characteristics of these instruments. Do they give rise to non-linear portfolio risks?

- If the manager trades options, what additional sensitivity measures are employed for risk management purposes? Does the manager track the delta, gamma, vega, and theta of positions? Does the manager have a bias to buy or sell options? Focus on understanding the tail risk that may be inherent in some of these strategies.

- Has the manager ever had a significant drawdown? If so, what were the circumstances?

What is the value of the manager’s largest peak to trough drawdown? How long did it take the manager to recover? Was this drawdown within expectations? For systematic strategies, compare actual drawdowns with simulated or back-tested results. Has the manager made any changes to his investment approach or risk management policies as a result of this drawdown?

What are the manager’s largest daily and monthly losses? Describe the reasons for these losses and any changes in investment approach or risk management policies that came about in response to these losses.

- What does the manager perceive his worst case scenario to be? What does the manager expect to be a worst-case loss in a day, week, or month? How do these numbers compare with historical performance?

If the manager applies a stop-loss discipline, it may be helpful to ask how much the manager might lose if he hits all his stops and all of his options are worthless (i.e., all premium spent has been lost assuming the manager is long options).

- How long will it take the manager to liquidate his portfolio?

How long will it take the manager to liquidate 75% of the portfolio, 90% of the portfolio, and 100% of the portfolio. If it takes two to three days to liquidate 75% of the portfolio, but two to three months to liquidate 100% of the portfolio, it is important to understand what constitutes the less liquid 25% of the portfolio.

It is also important to determine the liquidation price under various market scenarios. If a manager can liquidate 100% of his portfolio in one to two days, but with a substantial loss, the portfolio is really not liquid.

“For managed futures, ask the manager to walk you through historical examples of how the system(s) made AND lost money and speak specifically about why the system behaved as it did in each instance.”

Be careful to scrutinize the liquidity risk implicit in particular regions or derivative structures that macro managers may employ.

Try to assess the additional impact of other variables on liquidity such as position concentration, asset growth, investor concentration and redemption terms.

- How do reduced trading volumes affect the liquidity of the relevant markets or instruments? Is the manager nimble enough to handle varying liquidity environments? What is the impact on the market of a typical trade for this strategy?

Who is on the other side of the trades that the strategy typically executes? Is there a dominant dealer? Is the dominant dealer monopolizing the liquidity in that instrument?

Familiarize yourself with the dynamics of the markets in which your manager trades. Get a sense of how large a manager's positions are with respect to the markets in which the manager trades. This is particularly important for less liquid markets (i.e., some of the commodities markets) as limited liquidity can affect the fund's positioning, valuation, and the capacity for the strategy as a whole.

Will a significant redemption alter the portfolio by leaving the most illiquid instruments with remaining investors? Be wary of this possibility, particularly if there are side letters and preferred redemption terms for some investors.

- What is the maximum position size with respect to the average daily trading volume of that instrument? Has the manager ever exceeded this parameter? Understand the liquidity of the underlying markets the manager trades and how this relates to the size of the manager's positions.

- Does a manager intend to hold any private or restricted issues? How do these holdings impact the portfolio's liquidity profile? Will private issues be side-pocketed? How are they marked and what is the procedure for marking them?

- Do the liquidation terms of the fund make sense or match the liquidity of the fund's instruments or marketplace?

Be very wary of funds that provide generous liquidity terms relative to the liquidity of the instruments and securities employed by that given strategy.

- Has the manager installed appropriate terms to prevent a "run on the bank?"

Are there "gate" provisions installed to protect remaining investors? How do any "gate" provisions impact your specific interests as an investor?

- Is leverage used in the portfolio?

How does the manager define leverage, especially in the context of futures and options (i.e., market value or face value)? Managed futures strategies tend to view leverage as margin-to-equity. Discretionary macro managers typically describe their leverage as a percentage of assets under management.

To what degree is leverage employed in the portfolio and in what context? What is the

"Has the manager installed appropriate terms to prevent a "run on the bank?"

maximum leverage that could be employed at any time? What is the historical average, maximum, and minimum leverage used by the manager? What particular environments or circumstances would prompt a reduction in the use of leverage? An increase?

Familiarize yourself with the nomenclature of leverage and leveraging practices in different markets. Futures require a small amount of margin funding. Cash FX often trades on bank lines with no upfront cash, but payments for negative price movements. Swaps require some cash that can be posted in the form of bonds as a "haircut." If you have a managed account with a CTA, be sensitive to the prices used for the Cash FX trades. Banks have been known to take out more money than necessary for funding an FX trade and then buy the high and sell the low of the day when making the transfers.

- What conditions would create the "perfect storm" where portfolio leverage would pose problems for the strategy and/or the portfolio manager? Understand how previous periods of market stress might have impacted the strategy.

- How does the manager manage cash for margin requirements? How much cash does the manager typically maintain for margin servicing requirements? What sort of event (market and/or portfolio drawdown) would lead to forced liquidations to meet margin calls? How does the manager adjust all of the above for flows?

- How many brokers and/or banks extend leverage to the fund?

- Has leverage or other forms of credit lines ever been revoked? If so, obtain an explanation.

- If the manager trades heavily in the fixed-income space and executes its views using instruments other than futures, it is important to assess the tenor of borrowing terms, the notice required and the circumstances under which counterparties must change financing terms or haircuts.

- To what degree does the manager monitor counterparty risk? Who are the manager's key counterparties? Obtain a list of the manager's executing brokers. Develop an understanding of counterparty concentration and counterparty ratings.

- Understand the hedge fund manager's own process in analyzing the risk of each of their counterparties.

In light of the recent events at Refco, counterparty risk has come to the forefront of investor concerns. Investors in funds that traded OTC products with Refco may suffer losses entirely unrelated to the market movements associated with those positions.

Who is the manager's prime broker? Prime brokers are often a dominant source of counterparty risk.

Familiarize yourself with the counterparty risk associated with different instruments. For instance, exchange-traded instruments have limited counterparty risk. They are backed by the exchanges and margin settlements are made daily. OTC products, such as foreign exchange forwards and swaps, are not backed by exchanges. The terms under which they trade are subject to agreements between the parties involved.

"Humans are good at designing the models and computers are good at testing and executing them."

Toby Crabel,

November 20, 2003

“Leverage is a matter of choice. It’s just a simple fact that magnification – which is all leverage is – increases risks.”

Paul Singer, January 23, 1997

Review any arrangements the manager maintains with counterparties. What are the terms of the manager’s ISDA agreements?

B. Operational Risks

- How are the distinct responsibilities for the fund’s front and back office arranged and, ideally, separated?
- Are the operational, back-office, and administrative professionals seasoned? What challenges have these professionals encountered since the fund’s inception (or at a prior firm)? In general, how do they appear to have adapted to these challenges? With what frequency have issues or problems been surfacing? Are there any current “operational issues” the firm is dealing with? To what degree do you sense that problems are being anticipated?

Regarding operations professionals, experience working at a bank is a plus because of the implied understanding of all the moving parts of a trade.

- How does money flow into and out of the fund? Where is it kept? Who signs checks for the company and for the fund in which you are investing? Is there a co-signer? Is one of these individuals a third party? Do you fully understand the path that the money takes? What is the role of independent third parties?
- What is the frequency of cash account reconciliations?
- What is the fund’s cash management policy?
- What kind of cash management procedure does the manager employ?

Global macro managers and CTAs can both allocate significant amounts of capital to futures and forwards, which by their nature require collateral (margin) and therefore imply leverage. A CTA might only require between 10% and 20% margin to equity—therefore it is important to ask how the fund manages excess cash.

- Are soft dollars employed? What are they? What are they in relation to all operational costs?

Typically cash management may be outsourced to an agent who will invest the cash in low risk or risk-free instruments—which in turn is collected back into the fund’s performance. It is important to understand this process thoroughly.

- How does the manager track the integrity of data sources (i.e., price feeds into trading and risk management systems)?
- Once a trade is executed, how are positions captured by the fund, its administrator, its prime broker, and its custodian?
- What is the frequency of broken trades? What is the fund’s reconciliation process? How often does the fund reconcile positions with its prime brokers, custodian, and administrator? Who within the fund is responsible for this reconciliation?
- How often has the fund experienced operational or back-office errors? Who pays for those errors? Is the manager content with

the service provided by the prime broker(s) and other key back-office service providers?

How fluent (and comfortable) does the manager seem in discussing the character of the fund's back-office processes and operational discipline(s)? Does the manager seem distracted or preoccupied with trade reconciliation or broken trades?

- What is the fund's portfolio pricing policy? Who prices the portfolio? How often is the portfolio priced? Is the fund self-administered? What data sources are used for pricing purposes? Are there differences in the way daily or weekly estimates are calculated versus the official monthly NAV? Has the manager ever restated an NAV? If so, please explain.

- Are there provisions if there is an abrupt absence of a key service provider (e.g., prime broker, administrator)?

- What are the backup procedures for the hedge fund's operations? Is offsite trading readily available? Are there frequent backups of trade, client accounts, and research data?

- Is there a disaster recovery plan? What precautions has the portfolio manager taken in light of a possible catastrophic failure prompted by a computer, systems, software, telecommunications, fire, or terrorist attack?

- Are there provisions for the loss of the portfolio manager or other key investment professionals?

"How did the manager perform in difficult market environments such as the Summer/Fall of 1998 and September 11, 2001?"

V. Management Company, Fund Structure, and Asset Base

> "Skill is rare. There are lots of painters, but few Picassos."
>
> Vern Sedlecek, Feb. 18, 1999

The investment advisor of a hedge fund runs a business. It may be smaller than some; it may be more entrepreneurial than others. But, at the end of the day, it is a business that shares characteristics with other commercial enterprises. Investors need to employ the same critical thinking in hedge funds as in other investing. They need to consider the structure, ownership, and financial strength of the entity directing the management of the assets. Is it transparent? Is ownership clear? Is there a succession plan? Do key employees have sufficient incentive to remain with the advisor? Is the business economically viable? All these and other questions will directly impact on the manager's ability to deliver investment performance. Equally important is an evaluation of the individual fund in which the investor will invest. Issues of incorporation, registration, regulation, and integrity of structure, are all critical to successful long-term investing.

A. Management Company

- What is the legal entity? What are the details of its state or country formation? Where is it domiciled?

  Is the country of domicile a well-known or an unknown jurisdiction? Is it a well-respected jurisdiction? For example, reputable jurisdictions have been known to be Dublin and Bermuda, followed by Luxembourg and the Cayman Islands.

- Are they registered as an Investment Advisor, Commodity Trading Advisor (CTA), a Commodity Pool Operator (CPO), or Bank Holding Company? Are they regulated under the U.S. Securities and Exchange Commission (SEC), National Association of Securities Dealers (NASD), the National Futures Association (NFA), the Financial Services Authority (FSA), Bank of England or the Federal Reserve Bank, or the Japan Financial Services Agency (FSA)?

  Do you understand fully the kind of information implied by the various mix of registrations that may apply to a portfolio manager or investment advisor? Use an in-depth review of these information sources to deepen your understanding of the investment professionals and the organization as a whole. Anticipate your plan for consistently reviewing these affiliations and registrations for your eventual monitoring regimen as you consider a prospective investment.

- What is the ownership structure?

  Simple is better.
  Who are the owners? Certain employee(s) or an institution(s)? Bear in mind that a cultural difference may be reflected in the ownership structure. For example, U.K. funds will often be owned by institutions whereas U.S. funds tend to be employee-owned.

- Does the manager own a significant percent of the fund or management company? What percentage of his net worth is invested in the fund or the management company? Does the manager have an upfront policy for highlighting any material changes to his personal investment in the fund?

- Have employees been given ownership or options in the equity of the firm?

- Does the manager use fee deferral? How much is deferred?

- Are there any joint ventures or partnerships through which business is conducted that may cause a conflict?

Do they offer a crossover (public and private securities) fund that may either add value to research or may create a liquidity problem?

- In what other partnerships and businesses do the principals operate or maintain a significant interest?

  Does the management company own a broker/dealer? Is it disclosed? Are trades recaptured by the hedge fund? Does it present any conflicts or does it add value? Why or why not?

  Do the principals sit on any boards or have time-consuming obligations such as private-equity investments or involvement in politics?

- Are there any direct relationships with other hedge funds? For example, does another hedge fund provide seed capital? Is that seed money from the hedge fund manager's personal capital or is it provided by his investors?

Seed capital from larger hedge funds can mitigate start-up risk—especially when the fund acts as a mentor to the new fund. This stands in contrast to broker-sponsored funds whose mentoring ability is limited.

- If the hedge fund has a sponsor relationship, seek to understand the agreement. Does the sponsor have capacity or other special arrangements?

  Does a sponsor dominate a new fund's capacity?

- Does the sponsor share its infrastructure with the hedge fund? If so, can the sponsor see the trades? Can the sponsor "piggyback" on these trades? Do they share ideas which can negatively impact capacity and/or trading nimbleness?

- Does a sponsor use its equity in the new fund to drain off profits thus reducing the incentives or the motivation of the entrepreneur? Can the sponsor continue to add value beyond the initial investment?

  Are there any special arrangements with the sponsor that can create a burden on the new manager? Is there a "sunset" provision for this relationship? In other words, is the economic relationship designed to taper off over time? Does the portfolio manager retain the right to buy back the sponsor's interest?

- What is the history of the hedge fund management company and what are the company's development plans?

Aggressive asset gathering in one or many funds may reveal business priorities that are not aligned with the interests of most investors. Is the management company more focused on gathering assets than on generating performance? Again, explore the details of the principal's and the institution's level of co-investment and business ownership. Are there more obvious incentives for obtaining management or incentive fees?

Has the management company recently reorganized itself out of a mutual fund structure? Why? If yes, how is its investment strategy different?

- Who is on the board of directors? What authority does the board have, if any?

> "Aggressive asset gathering in one or many funds may reveal business priorities that are not aligned with the interests of most investors."

Do not overestimate the influence of a board of directors. Currently they are hired by the hedge fund manager and have little independence. Many boards are rather transparently established for marketing and public relations during an initial capital raising phase. Are the board members invested in the fund?

B. Fund Structure and Asset Base

- What funds are offered by the management company? How are they structured? For example, is it a master-feeder structure?

- If it is not a master feeder structure, are the funds managed on a "pari-passu" basis? How are managed accounts treated?

  Understand the allocation process between funds if they are not organized as a master-feeder structure. Also review managed accounts.

- Are there multiple versions of the fund which offer varying degrees of leverage? How do fees vary with these different programs?

- Is there more than one strategy? If so, is there synergy in the application of the various strategies?

- What are the total assets under management of each fund and of the management company? What is the historical growth in assets under management for each vehicle and in aggregate?

- Are the assets under management appropriate for the strategy? What is the anticipated growth in assets and does this appear to be measured and disciplined? Are the strategy and investment processes scalable as assets under management grow? Are there capacity constraints?

Is the manager realistic in determining the capacity? Is the manager creating a false sense of urgency? Is the manager manufacturing "hype" to raise money by setting a soft close?

Will growing the assets beyond a certain point result in "style drift?"

This may be a good time for you to understand the composition (and stability) of the manager's investor base. It may also be an opportune time to discuss your potential future capacity needs to determine if the manager will be able to meet them.

- Have there been periods of substantial redemptions? If so, is there a reasonable explanation? Were redemptions met without delay, a gate, or interruptions? Was performance negatively affected by the redemptions?

- What has been the rate of asset inflows?

  Does the fund have a disciplined policy for taking money in? Have the principals established any limits on inflows? Does the portfolio manager have control over inflows?

- Are there separately managed accounts? Are these accounts subject to special arrangements like structured notes? What percentage of assets is managed separately from the fund? How are the separate accounts struc-

tured? Are the liquidity terms of the fund different from the separate accounts?

Undue administrative and business complication is always the enemy. Less complicated business and decision-making structures generally allow for better professional focus and tighter alignment of incentives between the manager and the investors' interests.

- What is the composition of the investor base?

Is it diversified or is there concentration among a few outsized investors? Is it concentrated in one category of investor? For example, how big is each of the three largest investors?

Try to understand the relative stability and sophistication of the marginal fund investor. Also, pay attention to the mix of offshore and onshore investors and the manager's (or organization's) level of direct familiarity with those investors.

- Is there a "most favored nation" clause? If not, get an explanation of any different terms offered to other investors such as better liquidity, fees or transparency? Are there any side letters? If so, what are they?

- Does the fund accept "leveraged equity" (i.e., accept capital from leveraged fund of funds or from individuals who are employing leverage directly to their personal investment)?

Be careful if a portfolio manager seems blithe about any implied risks to the stability of his capital base. Assess investor concentration and quality. Discuss investor turnover.

VI. Quantitative Review

Managed futures performance information is always accompanied by the warning that past performance may not be indicative of future results. It is certainly a truism all of us investing in hedge funds have come to appreciate over the years. But, at the end of the day, we all use historical performance in assessing hedge funds. And there is certainly value in engaging in quantitative analysis of historical hedge fund performance. In fact, for some strategies and managers, quantitative analysis of historical returns can provide useful indicators of measures such as variance and covariance. But the successful investor in hedge funds will use these analyses as a departure point for discussion with managers about issues such as performance under certain market conditions, identification of particularly good or difficult periods in the past, and consistency of performance over time. And, critically, the investor needs to gain considerable insight into how these track records were developed. Are they actual or simulated? Do they reflect consistent application of strategies or consistent investment teams? These and a number of other questions relating to this topic are highlighted below.

- Review monthly performance of the hedge fund since its inception and confirm the ownership of the record. Consider prior track records for key principals if the degree of ownership is material and can be accounted for.

  What are the return goals for the fund? Has the performance objective been consistently achieved?

- Is performance consistent with your, the prospective investor's, expectations?

  Compare monthly, quarterly and annual track records to appropriate peer groups and market indices. How does performance compare with that of similar funds and strategies?

  CTAs are often more willing than managers of other strategies to provide higher frequency performance data – in part because the 'secret' to their methodology is codified, and difficult to reveal via a historical stream of returns.

- What are the volatility parameters for the fund? Does the fund's recorded standard deviation fall in line with what the portfolio manager has suggested in interviews and marketing documents or the prospectus?

  Is the fund's volatility outside of its expected parameters or the volatility you would reasonably expect of other similar strategies?

- Is the track record audited?

- Is the track record pro-forma?

  Be wary of pro- forma track records. Most investors do not consider the evaluation of pro- forma track records to carry much analytical value.

- Consider how assets under management may have changed over the life of the track record. Gather data on the assets by fund, by strategy, and for the firm in aggregate.

  Did rapidly increasing assets diminish the performance?

VI. Quantitative Review (cont.)

Was the track record achieved with a tiny amount of assets? If so, was the manager able to use smaller capitalization instruments that the fund may be too large to take advantage of now? In general, is the process that generated the present track record repeatable?

Are separate accounts included in the track record? If not, are they attempting to disguise the true amount of assets under management in the strategy? Be aware that separate accounts can hide a fund's true measure of capacity and continued growth.

- What percent of the track record is attributable to the current team managing the hedge fund? Are the individuals who created the track record still there and are they still as actively involved in the investment process?

Seek to understand the ownership of a track record. Understand who was responsible in precise terms. Understand who had authority for investment decision-making.

- Seek to understand the nature of a new hedge fund manager's set of responsibilities at a previous employer. Does the manager have actual portfolio management experience? Note: Portfolio management is a very different skill set than that of picking stocks.

- Have there been any changes to the strategy over the life of the track record that should cause the record to be reviewed in segments? Examples of this may include a new hedging discipline or a marked increase and/or decrease in gross exposure.

New funds often require time to "ramp up" exposure.

If some key investment disciplines are being applied differently due to adjustments or "lessons learned," be certain to segment the performance history accordingly.

- Review the correlation of the hedge fund's track record to relevant market indexes and, to the degree it's appropriate, the portfolio for which inclusion is being considered. Review correlations over different and possibly revealing intervals of time such as periods of market dislocation. Understand the fund's correlations in the context of its strategy, its chosen exposures and its performance during notably difficult market environments.

Use correlation analysis as a tool to enhance your understanding of the fund strategy but beware of its obvious limitations. In particular, correlations can be relatively unstable and may change dramatically in different market environments. Quantitative analysis can help shed new light on the character of a strategy but should be evaluated in the context of all other research, including qualitatively drawn judgments. Correlation analysis is considered most helpful as a complement to rigorous qualitative assessments.

- Review all draw-downs from peak to trough. How quickly did the fund recover? What are the longest monthly positive streak and the longest monthly negative streak?

- What kinds of drawdowns are acceptable to the manager? Ask the manager, 'what kind of drawdown should prompt a call from me?'

Ask the manager to tell you the fund's largest intramonth drawdowns. That is, the largest which occurred between monthly NAV statements. This can be significantly different than what the data discloses.

"CTAs should be only 10-11% of a portfolio of hedge funds. Buy when the trader has a string of back-to-back losses. Buy when the trader's trailing 90 day average is slightly negative."

Ken Tropin,

November 20, 2003

> "First, no matter how complex and subtle a strategy is, no matter how sophisticated it might be, it must be possible to describe that strategy in simple and intuitive terms. Second, you will never see a bad back test. If you torture the data long enough, it will tell you anything you want. Third, any mathematical model should leverage human judgment, not replace it. Fourth, mathematical models are like power tools. You need to know when and how to use the right tool to solve a problem. Fifth, human preferences are the next undiscovered continent. The challenge lies in developing a mathematical model of human preferences, cognition and learning. The best approaches are agnostic and opportunistic."
>
> Andrew Lo, March 20, 2003

VI. Quantitative Review (cont.)

- What are the biggest positive and negative months?

  Do these outlier months make sense in the context of your expectations for the fund's performance and its supposed risk management disciplines?

- Understand drawdowns and large upswings in the context of the market environment in which the fund has operated. Is the fund's performance too dependent on a lucky call or two? Is good performance the result of a single outsized bet that worked out and is unlikely to be repeatable? Has the basic portfolio posture (and the returns the strategy has generated) simply been the beneficiary of a market environment that is perfectly suited for it?

- Gather returns data on a detailed attribution basis by: longs and shorts, sectors, different instruments, sub-strategy, and/or market capitalization. Review your understanding of the fund's return drivers and contrast it with your study of the fund's actual sources of return in practice.

  Does the attribution analysis confirm your understanding of where the fund made money? Is there surprisingly strong or weak performance in certain segments of the portfolio?

  What does the attribution analysis suggest about the manager's true level of trade construction or portfolio management skill?

  Is the manager a proven talent as a hedge fund manager or in deploying portfolio hedging strategies and how can you tell?

- Obtain, if it is permitted, a few historical portfolios using dates chosen by the evaluator for review prior to an investment.

  These portfolios should be obtained directly from the prime broker rather than the hedge fund manager to ensure data integrity and independence. This test should demonstrate the managers' consistency in the application of the strategy over time as well as the portfolio manager's adherence to stated risk disciplines.

- Is the fund managed with a degree of tax sensitivity in mind? What percentage of returns is realized and unrealized?

  Bearing in mind that the offshore investor is indifferent to tax consequences, are the onshore and offshore funds being managed in a substantially different way? Are differences in the application of the onshore and offshore strategies a source of distraction? Compare the performance of the onshore and offshore fund. If there are differences, ask the manager why.

VII. Operations and Transparency

The public press often refers to hedge funds as "secretive." There is no question that a number of hedge funds are focused on privacy. Some may result from a desire to protect a proprietary trading strategy. Some may result from a desire to permit the hedge fund manager to focus on investing. Some probably reflect the idiosyncratic personality of certain hedge fund managers. But, it is important for each investor in hedge funds to develop an individual standard for accessibility and transparency for his own investments. Certainly, some degree of operational transparency is critical for most investors to feel assured about the integrity of their assets. Performance reporting is also a standard and required feature of all hedge fund investing. Beyond these, though, the standards become less uniform. Some hedge fund managers provide considerable contemporaneous transparency of portfolio positions and risk. Some provide only summary measures. Some provide extensive analysis of recent performance (e.g., quarterly reviews); some offer little more than periodic investment performance. There is no single standard. Investors need to consider some of the issues outlined in this section and, in the end, determine the level of transparency necessary for them to comfortably invest.

- What are the backup procedures for the hedge fund's operations? Is offsite trading readily available? Are there frequent backups of trade, client accounts, and research data? Where is data stored?

  It is important that the business have a contingency plan for any number of situations including power failure or the possibility of a natural or man-made disaster (e.g., 9/11).

- What transparency is provided to the investor? Does anyone have special transparency agreements or side letters?

- Would the manager allow the prime broker to provide a monthly or quarterly portfolio for the investor's review?

  This procedure can significantly reduce the potential for manager fraud, as well as give the investor insight about how the manager invests and whether the manager adheres to his disciplines. However, this information can be less relevant for a high frequency CTA because positions will vary significantly during that period.

- How does the manager communicate to investors? How often?

  Does the manager's letter to investors reveal what is really going on in the portfolio? Is there a commitment to maintaining a dialogue of substance and quality?

- Are manager meetings with investors discouraged? Why?

- Are those responsible for investor relations sufficiently experienced and informed enough to provide a useful and in-depth dialogue?

- How well does the fund communicate its risks?

- Has the hedge fund manager ever delayed his estimates of the fund's net asset value? Why? Is the delay out of the manager's control?

- How frequently are performance estimates available to investors? Are mid-month or weekly estimates available?

- What information is available to investors on a monthly, quarterly, and annual basis? The following list represents ongoing information which should be considered fundamental for educated investors:

"There is no question that a number of hedge funds are focused on privacy. Some of this may result from a desire to protect a proprietary trading strategy. Some may result from a desire to permit the hedge fund manager to focus on investing. Some probably reflect the idiosyncratic personality of some hedge fund managers."

VII. Operations and Transparency (cont.)

- Size of fund and growth of assets under management
- Net and gross performance by share class
- Top 10 holdings. Position weightings
- Participation by sector, market cap, geographic region or asset class
- Net and gross exposure information
- Factor and risk exposure information
- Information regarding any changes in the firm, fund strategy and personnel
- Fund terms
- Service providers

- Is there appropriate disclosure of the character of the fund's overall balance sheet and/or the degree to which certain asset/liability gaps may be present? Is the notional value of derivatives disclosed?

VIII. Third Parties

Hedge funds require the support of a number of service providers in the operation of their business. There is considerable competition among these service providers for hedge fund business, and hedge fund managers have considerable choice both among providers and services when establishing these relationships. The services being performed by these service providers, and their quality, are important in hedge fund investing. The specific method an administrator uses to price a portfolio, the degree that a fund is dependent on a single counterparty (e.g., prime broker or Futures Clearing Merchant), and the form in which cash assets are held by counterparties are substantive issues faced by hedge funds. Indeed, an important aspect of investing in hedge funds may be in understanding the seriousness with which the hedge fund itself treats these issues and how it structures these counterparty relationships. While there are many ways to approach these issues, and while they have different costs associated with them, the final choices hedge fund managers make may also be a window into how they value the important services many of these service providers offer.

A. Auditor

- Contact the auditor. Cultivate a relationship and speak with the account leader if possible.

  Auditors are becoming reluctant to even acknowledge they audit the fund because this may establish that they owe a direct duty of care to the investor. Thus, investors may be forced to get this information from public filings, if available, or the manager, at worst.

- When was the last audit? Was the audit opinion "clean" or was there a "qualification?" How often are the books audited?

  Has the auditor ever been changed? Why? Carefully scrutinize turnover in key vendor relationships but especially with the prime broker and auditor. If fraud is occurring, these vendors will likely know before you do, and many firms have shown a willingness to shun business they think will eventually bring them trouble.

  If there was a qualification, what was the reason?

- Where did the audits take place? How was information collected?

- Is there also an outside accountant?

- Have there ever been any valuation issues that have arisen during an audit? Any other issues?

  Ever since the episode of fraud at Manhattan Capital where the auditor failed to identify the fraud, auditors are reluctant to release any details to investors. They usually refer the investor to the annual audited financial statements. This is why it is essential that an investor read through the audited financial statements as far back as they are available.

- Ask for the financial statements to come directly from the auditor. Review them in detail, paying particular attention to the Auditors Notes to the Financial Statement and the Auditors Report or Statement. Go back to the auditor directly to clarify anything in these sections or for the statements in general. What is the auditor's reputation?

  Compare year-end assets, subscriptions and redemptions (cash flows) and NAV to your notes with the manager.

"Market psychology is always changing. Traders must adapt their techniques constantly. Liquidity is important. Getting in and out without disturbing the price is difficult. The proliferation of hedge funds trying to out-game each other has made this more difficult."

Netta Korin, June 19, 2003

Review expenses. Do they seem in line with those of the fund's peers and, in percentage terms, have the expenses changed materially from year to year?

Often "hidden" expenses are disclosed in the footnotes.

Look for any additional information in an audit such as:

A condensed schedule of investments for a firm that does not provide portfolio transparency. This schedule will force them to provide a reasonably detailed breakdown of the portfolio.

Are there any other share classes disclosed with better terms or superior performance that might imply a lower fee class not shown?

Major changes to the management company or fund are often disclosed in the footnotes, including changes to the administrator, prime broker, directors, and to changes of ownership.
Is there any litigation noted? Have any provisions been made?

- Does the auditing firm do anything new, such as "agreed upon procedures?"

An agreed-upon procedure (AUP) may involve the auditor performing certain procedures of an audit nature with regard to financial data, a financial statement or even a complete set of financial statements to which the auditor, an entity client and any appropriate third parties have agreed to report their factual findings.

- Is there an active process for controls testing?

As the auditor simply provides a report of the factual findings of agreed-upon procedures, no assurance is expressed. Instead, users of the report assess for themselves the procedures and findings reported by the auditor and draw their own conclusions from the auditor's work. Typically, it is a mini-audit of either pricing or custody, usually done at a non-audit date (e.g., 6/30, 3/31). As an example, an investor may want to gain comfort that a hedge fund is correctly pricing its positions. However, the hedge fund won't provide portfolio transparency or perhaps the investor is not able to run the proper checks on his own. Instead, the investor and the hedge fund will hire the audit firm to do the work independently and report their findings back to the group. The investor becomes more comfortable with the pricing and the hedge fund does not have to reveal the portfolio.

- What additional procedures and services does the auditor provide?

B. Prime Broker/Futures Clearing Merchant (FCM)

- Contact the prime broker/FCM. Cultivate a relationship with the prime broker/FCM and speak with the account leader.

  Does the fund use multiple prime brokers/FCMs? Who are they?

  Has the fund manager ever changed prime brokers/FCMs? Why?

Understand that the prime broker stands ahead of the investor in the fund's capital

structure. Understand that the prime broker can liquidate the fund to take their capital first, leaving what is left for the investor. However, they also have an incentive to shun relationships that might create liability and many firms have demonstrated a record of doing so.

- Who are the counterparties? Who is the custodian?

For many strategies, it is very important that there be a prudently diversified group of counter-parties to the fund. This helps to insulate the fund's operations from market dislocations that could affect a counter-party's ability to serve its contractual responsibilities.

- What are the credit ratings of any counter-parties to the fund?

Ideally, the disposition of the fund's assets should reflect proportionally the different ratings of its counter parties.

- Does the fund get contractual settlements from their prime brokers?
- Has the fund been assessed fees by their prime brokers for operational errors?
- Obtain permission from the portfolio manager so that you are able to contact the prime broker directly to confirm the fund's assets under management before formally investing in the fund.

C. Administrator

- Contact the administrator. Establish a relationship and speak with the account leader.
- Is it a respected, well-known administrator?
- Do they have a full service agreement or just a record-keeping agreement?
- How often is the NAV calculated? When can investors expect to receive estimates and final NAVs?
- By what means and how often does the administrator receive the trades? Do they get trades from the manager or from a direct feed provided by the prime broker?

Position and trading information must come from an independent source, and not the manager.

- How do they receive pricing? Do they receive it directly from a market data vendor, from a third party pricing agency, or from the manager?

The administrator should price a portfolio independently from the manager.

Understand the administrator's capabilities for pricing complex securities. For complex models that might be required, from what source does the administrator get their input for the models?

Some illiquid or privately traded securities may be difficult to price. In those situations, the administrator should have written policies on valuation.

If the manager prices some of the portfolio, what percent of the portfolio? Be very diligent in understanding a manager's influence on the portfolio valuation.

- In the case of less liquid securities, do they set

"An asset class should offer unique investment return opportunities not available in other investment vehicles. Futures offer that uniqueness. Like a well-balanced meal the portfolio is not complete unless there is diversity."

Tom Schneeweis,

Feb. 18, 1999

the price with quotes from more than one source?

- What would happen in the case of a pricing dispute between the administrator and the manager? Who has final say? Has there ever been a dispute?

- Has there been any restatement of month-end NAV? When? How often has this occurred?

- Through the administrator, develop an understanding of the pattern of recent redemptions and subscriptions. Compare this information to what has been discussed with the hedge fund manager.

- Ask the administrator for NAVs since inception. Compare this to performance numbers given by the hedge fund manager.

D. Marketing Relationships

- Is there an external or outsourced marketing relationship?

- What kind of an agreement exists between the fund and the marketing agent? Is it an exclusive agreement? Are there multiple marketing agents?

- Where do the fees payable to the marketer come from?

Investors who come in to a fund through a marketer or placement agent should not in any way be at a disadvantage and shouldn't pay higher fees or expenses.

- Does the agent add value or communicate with the investor after the initial introduction? Is there a sunset provision for their involvement?

- What is the reputation of the marketing agent?

Good agents are concerned with fund due diligence, determining investor suitability and managing appropriate expectations. Some agents are more focused on rapid asset gathering rather than creating a stable base of long-term investors. Agents can often have a crude incentive to encourage a manager to raise more capital and raise it more abruptly than might be prudent.

Remember that introductions by reputable brokers do not constitute an endorsement. Moreover, prospective investors must understand that prime broker sponsored marketing introductions do not include due diligence.

- Is there a conflict of interest? Does the agent clear trades for the fund? This may create a conflict of interest.

- Is the Agent registered with the National Association of Securities Dealers (NASD) http://pdpi.nasdr.com/PDPI/ or the Financial Services Authority (FSA) http://www.fsa.gov.uk/ in London?

E. Other

Try to understand the marginal benefit of additional outsourced service providers versus the complication of additional vendor relationships. Also, attempt to understand what services may be better handled in-house.

- What other functions are outsourced by the management company?
  - Trading
  - Front/Back Office
  - Accounting
  - Research Consultants
  - Risk Management
  - Operational Consultants
  - Compliance and political consultants

IX. Intuition, Judgment and Experience

It is clear that one cannot create a questionnaire to be filled out by a hedge fund manager that would cover all aspects of the potential investment and due diligence and which would necessarily lead to a successful investment. In fact, it is likely that all of the previous sections in this report might only allow an investor to "triangulate" on an individual hedge fund that meets his investment goals and risk tolerance. This is really no surprise. Global economies are dynamic, individual markets are dynamic, and hedge fund organizations themselves are not static. And individuals themselves change over time. They respond to different incentives and the organizations they have created may reflect these changes as well. Investors in hedge funds need to bring to the investment process the same critical analysis and judgment they would apply to other areas of their personal and commercial life. They need to repeatedly assess (often imperfect) information against standards of reasonableness. They need to judge individuals and organizations based often on limited exposure. Not to be trite, but if it sounds too good to be true, it probably is. Interestingly, some hedge fund managers refer to their investors as their "partners" (and in U.S. limited partnerships, this is literally the case). One criterion for making an investment with a hedge fund might be whether you are really prepared to be this person's partner. But, in the end, there is no substitute for asking a large number of questions across a broad array of subjects and then assessing the information you have received for consistency and reasonableness.

- Do you feel comfortable with your level of understanding of the strategy and risks that attend to it? Can you explain it well to others? Investors and allocators should stick to the rule that they only invest in what they understand and where they can properly assess the risks.
- Can you trust this manager? Does he have any personal or emotional issues? Are there hints of issues with integrity, ego, arrogance, pride, affluenza, complacency, carelessness, excessive optimism, or any personal difficulties?

  Explore the manager's life outside the office.

  Significant personal life changes may disrupt a manager's holistic view. For a discretionary trader, personal upheaval can have a negative influence on the portfolio.
- Do you feel pressured to make an investment? Is this a "hot" manager? Is the fund closing quickly? Have you been given enough time to properly perform your due diligence? Does the manager appreciate your fiduciary obligation to do complete and proper due diligence? Were you expecting to "fill in the blanks" later?
- Do you believe the manager is truly committed to the fund and the interests of the LPs?
- Fundamentally, is the manager staying true to his core investment philosophy and doing what he said he always would be doing?
- Finally, and most importantly, would you invest your own money or your family's money with this manager? If you cannot confidently answer yes, you should not invest with this manager personally or on behalf of your client.

"Interestingly, some hedge fund managers refer to their investors as their "partners" (and in US limited partnerships, this is literally the case). One criteria in making an investment with a hedge fund might be asking whether you are really prepared to be this person's partner."

X. Documents

Performing a full review of documents associated with the hedge fund investment is a critical step before making an investment. Reviewing all the legal documents (Offering Memorandum and Subscription Agreements), receiving and verifying audit reports, performing reference checks are all necessary steps in a successful program in hedge fund investing.

- Offering Memorandum and Subscription Agreement.

  Take note of the quality of the prospectus. Does it include the appropriate biographies of the management team? Is it written in clear, understandable language? Is there a clear statement of the fund strategy and investment process? Are the risks disclosed? Are the risks clearly explained?

- Audited Financial Statements (If possible, try to evaluate statements going back three years). Audited financial statements should be closely investigated in the context of manager interviews regarding expenses, transparency, and legitimate administrative expenses.

  Pay particularly close attention to a change in auditor because here such changes may very well entail a vendor seeking to avoid liability associated with fraudulent practices.

- Qualitative review of the marketing material and the manager's own correspondence should help delineate particular nuances of the strategy being executed as much as the philosophy that animates the approach.
  - Marketing materials
  - Annual reports to investors (3 years)
  - Monthly/Quarterly reports to investors

- Due Diligence Questionnaire.

  RFPs might be seen as akin to Wall Street research. A due diligence questionnaire can be a nice way to fill in any gaps in the story but it is not a substitute for doing your own homework on the fund, strategy, principals, and the organization as a whole.

- Investment and key personnel biographies

- Organizational chart of the hedge fund management company and the hedge fund investment team.

  Review the biographies of each of the key investment and back office professionals to understand the strengths and weaknesses of the organization. Try to conceptually link the precise skill sets the key professionals possess and the ideal requirements for an organization trying to execute that strategy.

- List of references that should be contacted by the evaluator.

  To the degree possible, the evaluator should seek to complement formally offered references with supplemental industry references generated through your own network of investment industry contacts.

  Careful interviewing of current (and especially) past vendors and third-party service providers should also help.

  Do a background check on the manager, key employees, and the firm. This can be outsourced to an investigative firm.

"Denial or nerves-of-steel…and knowing the difference between them, separates the great trader."

Richard Dennis, Feb. 18, 1999

I. (CONT.)

The added expense of a full background check can help add a level of fiduciary comfort but is unlikely to convey much color on key intangible areas such as motivation, work habits, and managerial or operational expertise.

- Request several historical portfolios – dates chosen by you (the evaluator) rather than the hedge fund.

  Try to understand if past portfolio holdings mesh with your understanding of the investment strategy and risk management disciplines you have read about in the prospectus and have come to understand in the interview process.

- Prime Brokerage agreements and other financing agreements

  Independent confirmation of the fund's/firm's assets via the prime broker is often considered an important final step before a formal investment is made.

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