

Natural Resources Fund-of-Funds: Active Management, Risk Management, and Due Diligence

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This article comprehensively covers the new field of *natural-resources* fund-of-funds investing. We will first explain why the demand for such an investment has emerged, and then we will discuss the opportunities that an actively-managed natural-resources fund-of-funds can potentially exploit. Next we will examine the types of risk management analyses that fund-of-funds investors should expect of their commodity managers. And lastly, and perhaps most importantly, we will provide a from-the-trenches view of the crucial due diligence steps that a fund-of-funds investor should follow before investing in this emerging investment field.

EMERGING DEMAND FOR NATURAL-RESOURCES INVESTMENTS

The history of inflation-adjusted commodity prices has largely been one of secular decline with a great deal of cyclicity around this trend. Until very recently, commodity investments could not rely on a commodity boom for profitability and instead had to take into account the largely mean-reverting nature of commodity prices.

Over the long sweep of history, though, there have been exceptions. During the late nineteenth century's industrialization of the United States and during the post-World War II recovery of Europe and Japan, spot commodity prices did boom. If we are witnessing an equivalent large-scale industrialization of developing Asia, as discussed in Heap (2005), then new types of commodity investment strategies will need to be developed in order to take advantage of this opportunity.

There are two ways to take advantage of natural-resources investment opportunities. First, an investor may elect to invest in a commodity index product. In doing so, the investor will earn the inherent return of the asset class, will be able to do so cheaply, but will not be provided with any downside risk protection. It will be the responsibility of the investor to either time their investments in commodity indices, or create a properly balanced overall portfolio, so as to avoid downside risk.

Second, an investor can choose to invest with active natural-resources managers. As noted in Till and Eagleeye (2005), an institution can obtain its core commodity exposure through a commodity index investment and then include active commodity managers for further value-added. This is analogous to the evolving nature of institutional equity management whereby active management is being unbundled from passive index investments. A number of institutions are now getting core equity exposure through equity index funds, exchange-traded funds, and/or futures and then investing in long/short equity hedge funds for further value-added.

Now, when deciding whether to invest with either commodity trading firms and/or natural-resources hedge fund firms, investors must decide if they are comfortable with the boutique nature of these firms. A hedge fund may only have one or two key decision-makers, for example. This does not give a lot of comfort to institutional investors who require a deep investment team, who in turn would be expected to carry out a disciplined and repeatable investment process that does not rely on any one individual for its continued success, as discussed in Till (2004).

In contrast, fund-of-funds provide the type of structure that gives comfort to institutional investors. One possible organizational model is for institutions to use fund-of-funds to diversify away the idiosyncratic, operational risk of an individual hedge fund or commodity trading firm.

In the next section, we will show how a diversified investment in active commodity and natural-resource managers can potentially provide an investor with a very attractive set of returns with acceptable risk. Such an investment can be accessed through a specialist natural-resources fund-of-funds. The succeeding sections will discuss the unique risk- management and due-diligence issues that arise with such investments.

DIVERSIFIED, ACTIVE-MANAGEMENT OPPORTUNITIES IN NATURAL-RESOURCES INVESTING

The majority of attention to recent asset flows into commodity investments has focused upon allocations to commodity index-linked products. Current estimates suggest that the total assets linked to the six main commodity indexes are about \$110 billion. See Exhibit 1 for a list of the six main commodity indices.

Exhibit 1 – The Main Commodity Indices

- DeutscheBank Liquid Commodity Index (DBLCI)
- Dow Jones – AIG Commodity Index (DJ-AIG)
- Goldman Sachs Commodity Index (GSCI)
- Reuters/Jefferies CRB Index (RJ-CRB)
- Rogers International Commodities Index (RICI)
- S&P Commodity Index (SPCI)

Given that most of the attention to these asset flows has focused on passive, long-only exposure, an investor making an initial foray into commodities may conclude that the only decision to make is determining which commodity index is best. We find that while commodity-index investing does provide scalable opportunities for investing, the natural-resources universe is sufficiently rich in opportunities that an investor should also consider active investments in this asset class, which would add further value over an indexed investment.

Exhibits 2 and 3 verify that commodity indexes have historically produced equity-like returns with little correlation to traditional asset classes (or traditional alternative asset classes like hedge funds and managed futures), confirming the case for including commodities in a broadly diversified portfolio.

Exhibit 2 – Risk and Return Characteristics of Commodity Indexes, 1994–2004

Index	Compound Annual Return	Annualized Standard Deviation	Sharpe Ratio	Worst Draw Down
DBLCI	15.70%	19.74%	0.6	-46.11%
DJ-AIG	9.16%	12.76%	0.41	-36.20%
GSCI	8.75%	19.55%	0.25	-48.25%
RJ-CRB	12.84%	13.61%	0.66	-37.04%
RICI	13.95%	14.93%	0.67	-36.94%
SPCI-A	11.44%	16.48%	0.46	-37.57%

Exhibit 3 – Correlation Characteristics of Commodity Indexes, 1994–2004

Index	S&P 500	Lehman Brothers Long Term Treasury Index	HFR Fund of Funds Index	Barclay CTA Index
DBLCI	0.02	0.03	0.21	0.15
DJ-AIG	0.10	0.05	0.23	0.26
GSCI	0.01	0.11	0.19	0.21
RJ-CRB	0.09	0.01	0.21	0.19
RICI	0.07	0.00	0.21	0.16
SPCI-A	0.02	0.10	0.13	0.28

Commodity markets, particularly those markets where the underlying commodity is difficult or expensive to store, are vulnerable to short-term booms and busts regardless of long-term secular trends. Markets facing near-term disruptions create price fluctuations as one of the few mechanisms available to restore equilibrium. Prices that spike in one month have had a historical tendency to mean revert as the crisis dissipates.

Commodity markets are far more independent of each other than the constituents of other asset classes. Consider equities, where a decision to be long the asset class can be executed through generally correlated positions across different market capitalizations or sectors. Individual commodity markets – even sectors – are far less likely to be correlated. Fundamentals impacting corn versus aluminum versus gasoline are, largely, unique. Faber (2004) warns that even within a long-term bullish environment for commodities, individual markets may see periodic draw-downs of 50% or more.

Extreme commodity price volatility and the heterogeneous nature of individual commodity markets can potentially create trading opportunities for those that approach the commodity markets tactically. In addition, active commodity trading strategies can take advantage of short positions, cyclical trades, or short-term positions based on weather or other fundamental information as well as relative-value and arbitrage opportunities such as spread trades. These are all opportunities that a commodity-index investor will be missing.

Akey (2005) shows that active management can potentially provide commodity investors with attractive returns on both an absolute and risk-adjusted basis, without harming the diversification benefits of the asset class. See Exhibit 4.

Exhibit 4 – Active Futures Portfolio vs. Commodity Indexes, 1994 to 2004

Index or Portfolio	Compound Annual Return	Annualized Standard Deviation	Sharpe Ratio	Worst Draw Down	Correlation to S&P 500
Active Commodity Traders	15.17%	7.87%	1.43	-7.02%	0.08
DBLCI	15.70%	19.74%	0.6	-46.11%	0.02
DJ-AIG	9.16%	12.76%	0.41	-36.20%	0.1
GSCI	8.75%	19.55%	0.25	-48.25%	0.01
RJ-CRB	12.84%	13.61%	0.66	-37.04%	0.09
RICI	13.95%	14.93%	0.67	-36.94%	0.07
SPCI-A	11.44%	16.48%	0.46	-37.57%	0.02

Note: The commodity index universe is rapidly evolving. This exhibit was updated from Akey (2005).

Still, even an actively managed commodities investment faces limitations in the context of a futures-only portfolio, which will primarily be based on the limited number of deeply liquid futures markets. Outside of the most liquid energies and metals markets, few commodities markets trade in enough volume to support active trading of any significant size. This makes developing a diversified active portfolio very challenging.

In addition, futures markets cannot facilitate any trading in a variety of natural-resources and resource-linked markets that are without futures contracts. These additional markets are not esoteric commodities of little economic impact, but include very recognizable resources like water, alternative energy sources such as forestry products, and resources-linked opportunities like shipping, infrastructure, and utilities.

While creating an active commodity portfolio that includes securities investments can expand the investor's opportunity set, one concern is that adding equity investments to a commodity portfolio will detract from the diversification benefits by adding equity exposure. Published research has typically concluded that investors seeking commodity exposure should avoid accessing that exposure via equities. That is, investors who buy energy companies should expect their investment to behave more like a stock, and less like a commodity. However, this research has relied upon long-only passive sector equity indexes to arrive at its conclusions.

Akey (2005) constructs a second portfolio that includes both active futures traders and natural-resources-sector hedge funds, concluding that adding actively-managed equity exposure to the sector can expand the investor's opportunity set and add incremental amounts of absolute and risk-adjusted returns without a significant degradation in diversification benefits. See Exhibit 5.

We conclude this section by noting that a diversified investment in active commodity and natural-resources

Exhibit 5 - Active Futures and Hedge Fund Portfolio vs. Commodity Indexes, 1994 to 2004

Index or Portfolio	Compound Annual Return	Annualized Standard Deviation	Sharpe Ratio	Worst Draw Down	Correlation to S&P 500
Active Commodity Traders	15.17%	7.87%	1.43	-7.02%	0.08
Active Commodity Traders & HF	18.40%	8.60%	1.68	-16.58%	0.26
DBLCI	15.70%	19.74%	0.6	-46.11%	0.02
DJ-AIG	9.16%	12.76%	0.41	-36.20%	0.1
GSCI	8.75%	19.55%	0.25	-48.25%	0.01
RJ-CRB	12.84%	13.61%	0.66	-37.04%	0.09
RICI	13.95%	14.93%	0.67	-36.94%	0.07
SPCI-A	11.44%	16.48%	0.46	-37.57%	0.02

Note: This exhibit was updated from Akey (2005).

managers can potentially provide an investor with a very attractive set of returns with acceptable risk. Further, for institutional investors who use the core-satellite approach to portfolio management, they can obtain their core commodity exposure through cost-effective index products and then use a natural-resources fund-of-funds to provide additional returns over those of the institution's commodity index investments.

Now that we have established the case for active natural-resources investments, we will turn to discussing the unique risk-management and due-diligence issues that one must confront in this emerging investment category.

RISK MANAGEMENT IN NATURAL-RESOURCES FUTURES TRADING

A fund-of-funds manager will proactively attempt to limit downside risk in three ways: (1) by constructing a portfolio of diverse investment managers; (2) by choosing to invest in those managers who have a strong risk-management culture; and (3) by mitigating the business risk associated with hedge funds and commodity trading firms. This section of the article will discuss the second point and give examples of the types of risk analyses that fund-of-funds investors should expect of their managers.

A commodity manager needs to address both idiosyncratic risks and macro risks when designing a risk-management program. Idiosyncratic risks include those unique to a specific commodity market. Examples include simulating the impact of the discovery of Mad Cow disease in the U.S. on live cattle futures positions as well as examining the impact of the New York harbor freezing over on the price of near-month heating oil futures positions. Macro risks include discovering those risks in the portfolio that can create inadvertent correlations amongst seemingly uncorrelated positions. Examples include simulating the impact of a 9/11/01 event on a portfolio that is long economically sensitive commodities as well as examining the impact of surprisingly cold weather at the end of the winter on a portfolio of energy positions.

Exhibits 6 through 10 provide examples of crucial risk analyses that a commodity manager should perform.

Risk Report By Strategy

First, Exhibit 6 provides an example risk report for a commodity portfolio. This report shows the Value-at-Risk per strategy as well as each strategy's worst-case loss during normal times and during "eventful" periods. Eventful periods are defined as those times when the financial markets have performed very poorly. The report also shows the incremental risk of adding each strategy to the portfolio.

Exhibit 6 - Example Risk Report for a Commodity Portfolio

Strategy	Value-At-Risk	Worst-Case Loss During Normal Times	Worst-Case Loss During Eventful Period
Deferred Reverse Soybean Crush Spread	2.78%	-1.09%	-1.42%
Long Deferred Natural Gas Outright	0.66%	-0.18%	-0.39%
Short Deferred Wheat Spread	0.56%	-0.80%	-0.19%
Long Deferred Gasoline Outright	2.16%	-0.94%	-0.95%
Long Deferred Gasoline vs. Heating Oil Spread	2.15%	-1.04%	-2.22%
Long Deferred Hog Spread	0.90%	-1.21%	-0.65%
Portfolio	3.01%	-2.05%	-2.90%

Strategy	Incremental Contribution to Portfolio Value-At-Risk*	Incremental Contribution to Worst-Case Portfolio Event Risk*
Deferred Reverse Soybean Crush Spread	0.08%	-0.24%
Long Deferred Natural Gas Outright	0.17%	0.19%
Short Deferred Wheat Spread	0.04%	0.02%
Long Deferred Gasoline Outright	0.33%	0.81%
Long Deferred Gasoline vs. Heating Oil Spread	0.93%	2.04%
Long Deferred Hog Spread	0.07%	-0.19%

Source: Till (2005).

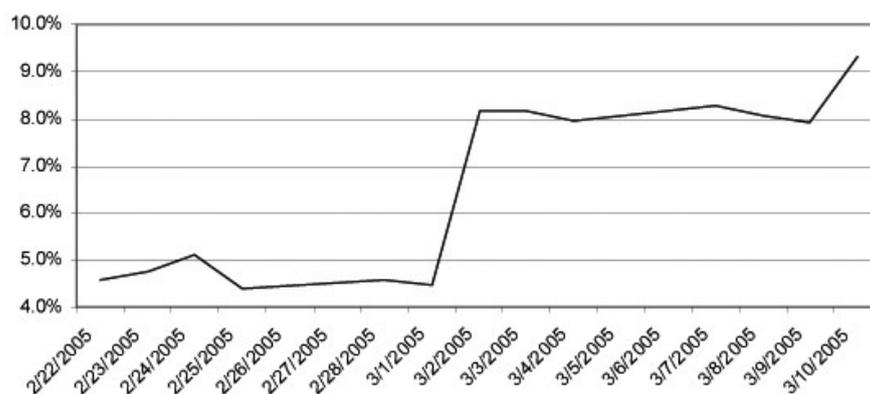
*A positive contribution means that the strategy adds to risk

Rolling Value-at-Risk

Second, Exhibit 7 shows an ongoing analysis of the Value-at-Risk (VaR) of a portfolio during a time of an intense uncertainty in the energy markets. In examining VaR, a commodity manager attempts to ensure that a portfolio's positions have not been sized so large that he or she cannot sustain the random fluctuations in profits and losses that might ensue. As this exhibit shows, VaR is obviously not a static number in the very dynamic commodity, and specifically energy, futures markets.

Exhibit 7 - Rolling Value-at-Risk for an Energy-Focused Portfolio

**Rolling Monthly Portfolio VAR (based on previous 7 business days)
(VAR = 2 * Standard Deviations)**



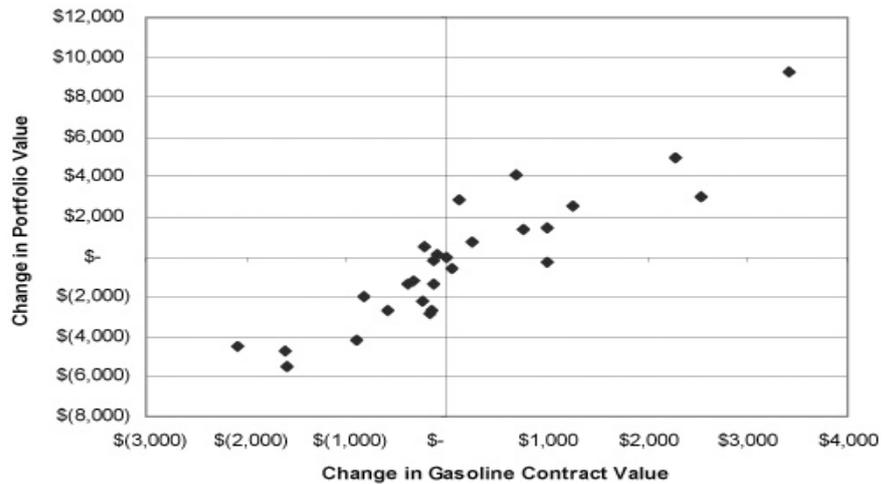
Source: Premia Capital Management, LLC.

Beta Risk

Third, Exhibit 8 provides an example of evaluating a portfolio's sensitivity to a commodity market, specifically in this case, the gasoline market. A commodity manager may have limits on the amount of exposure to the outright direction of an individual commodity market, especially if that manager specializes in relative-value trades. The analysis in Exhibit 8 would be necessary under such a constraint.

Exhibit 8 - Evaluation of a Portfolio's Gasoline Beta (or Exposure)

Energy-Focused Portfolio's P/L vs. Changes in Gasoline Futures Contract's Value for an Unleveraged \$1-Million Portfolio (2/1/05 to 3/10/05)



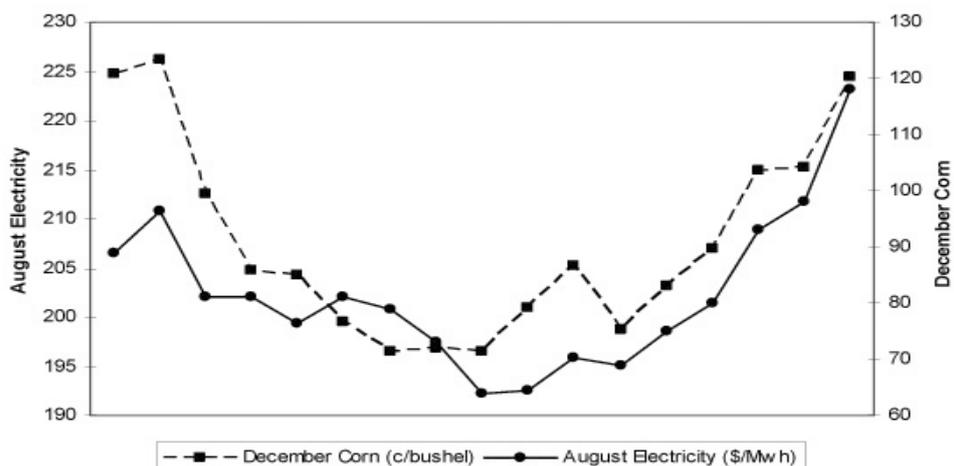
Note: This portfolio has a Beta-weighted exposure of 2.4 gasoline contracts per \$1-million in account size.
Source: Premia Capital Management, LLC.

Inadvertent Concentration Risk

Fourth, Exhibit 9 provides an example of inadvertent concentration risk. In order to meet the goal of creating a diversified portfolio, a commodities portfolio manager needs to exercise due care in ensuring that each additional trade is in fact a risk diversifier rather than a risk amplifier, as discussed in Till and Eagleeye (2005). If two trades are in fact related, then one should consider them as part of the same strategy bucket and require them to share risk capital. If each trade is instead allocated full risk capital, then the manager may be inadvertently doubling up on risk.

Exhibit 9 - Example of Inadvertent Concentration Risk: CBOT Corn and NYMEX Electricity Prices During July 1999

Daily December Corn Futures & August Electricity Futures Prices (6/29/99 through 7/23/99)



Notes: The August electricity prices are specifically for the futures contract on Cinergy electricity, which services portions of Ohio, Indiana, and Kentucky. This futures contract traded on the NYMEX until being delisted on 2/15/2002. CBOT is the Chicago Board of Trade. NYMEX is the New York Mercantile Exchange.
Source: Premia Capital Management, LLC.

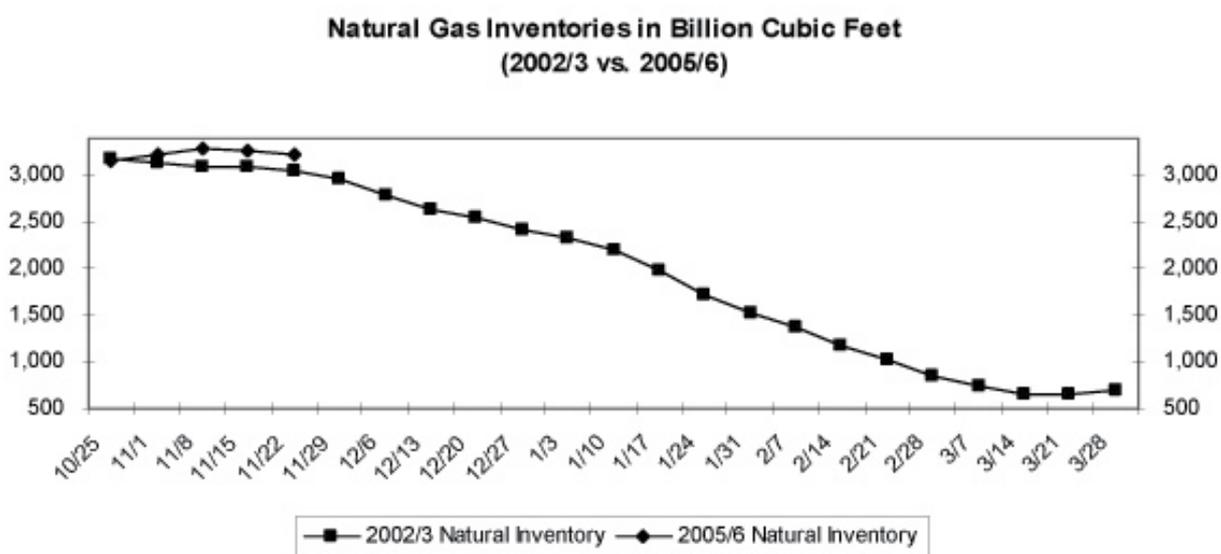
If a manager had invested in corn and electricity futures contracts during July 1999, that manager would have indeed doubled up risk. During that time, the U.S. Midwest had blistering temperatures (which even led to some power outages.) During that time, both corn and electricity prices responded in nearly identical fashions to weather forecasts and realizations.

This example shows that a manager must understand what the key factors are that drive a strategy's performance. If two strategies have common drivers, then it can be assumed that their respective performances will be similar.

Extreme Weather Risk

Lastly, Exhibit 10 shows an example of monitoring the potential for extremely cold weather to cause a near stock-out in storage for natural gas. When U.S. natural gas storage inventories have been drawn down to uncomfortably low levels at the end of winter, the natural gas price has historically responded by exploding. Lamme (2005) quotes a futures trader regarding the extremely cold winter of 2002-03: "I remember that season well, because we started off the winter with early intense cold, and ended the season late with intense cold – and many participants in the industry were seriously worried that there might not be enough gas to get us across the finish line." Exhibit 10 specifically shows an example of monitoring the changes in natural gas inventories during the winter of 2005-06 versus what happened during the winter of 2002-03.

Exhibit 10 - Monitoring the Potential of a (Near-)Stock-Out in Natural Gas



Note: This graph specifically shows the U.S. Department of Energy's total estimated storage data for working natural gas inventories.
Source: Premia Capital Management, LLC.

This section has covered the types of market-risk reports that fund-of-funds investors should expect their commodity managers to employ. The next section will cover how a fund-of-funds investor should attempt to mitigate the business risk associated with commodity and natural-resource investment firms, many of which are start-ups.

DUE DILIGENCE IN NATURAL-RESOURCES FUND-OF-FUND INVESTING

The term due diligence is commonly applied by many people in various fields. In fact, the term has become so widespread in business and especially in the professional investment process that it has become almost cliché. The remarkable factor is that despite the ubiquity of chatter in the investment world regarding due diligence, it remains a loosely defined and vague concept with parameters that are subject to broad interpretation. As such, one may wonder what exactly is due diligence. Merriam-Webster defines due diligence as "the care that a reasonable person exercises under the circumstances to avoid harm to other persons or their property." It sounds like Webster never experienced a double-digit drawdown.

Many would-be investors utilize the term due diligence as an all encompassing umbrella term that covers everything from the understanding of an investment's return driver to the information technology disaster recovery process. Yet other investors think due diligence is nothing more than conducting background checks on the principals while the analysis of return generation becomes a separate process.

Adding to potential confusion, not only is the interpretation of the practical meaning of the term inconsistent across various investors, but implementation of the process varies greatly as well. Some investors prefer to generate massive checklists that leave no stone unturned while others prefer face-to-face interviews that rely on personal instincts and industry experience.

Perhaps the best way to come up with a proper understanding of due diligence is to take a step back and examine the desired outcome of a successful due-diligence process. In such an examination, an investor clearly hopes to confirm all material assertions made by an investment manager. It further becomes clear that numerous methods of uncovering information could lead to the same desired result and shows that there is certainly no single correct methodology to conduct due diligence.

The intention of this section is not to meander through the nuances of interpretation of what a thorough due-diligence process is nor is it to outline an exhaustive A-to-Z recipe for such a process. Instead, the goal is to highlight some practical points of interest and real-world experiences that the author has encountered while interviewing hundreds of Commodity Trading Advisors ("CTA's") and hedge funds. Where applicable, we will note the points that are of particular relevance to natural-resources trading managers. These observations can largely be classified into market risk and business risk. As market risk is more appropriately addressed in a discussion of trading strategy and risk management, the focus of this portion of the article will be on 1) business risk and 2) business risk mitigation in relation to natural-resources trading managers.

Business Risk

An initial observation is that investors assess the risks and rewards of any investment opportunity by focusing heavily on the underlying market risks of a particular trading strategy while overlooking an often more easily understandable and controllable risk: *business risk*. The irony is that some measure of market risk is an inevitable component of any investment strategy, and investors are hopefully paid to assume such risks while business risk does not pay a premium and can be largely reduced with thorough due diligence and some common sense. This observation is not meant to de-emphasize the importance of vetting the degree of market risk associated with a particular trading strategy but to suggest that one of the most significant ways that an investor can reduce unnecessary risk is to avoid business risk.

Business Inexperience

Business risk can exist in any organization of any size, but it is generally most prevalent in newer and/or smaller firms. The start-up business risk factor is especially pertinent to the fledgling universe of natural-resources managers due to the rapid growth of investment firms in the space. While some CTA's and a few hedge funds have been in existence and operating independently for decades, the vast majority of natural-resources trading firms have emerged only recently. There is currently huge demand for experienced and skilled traders working independently of large organizations. This phenomenal demand for natural-resources traders parallels what began in the early 1990's for equity and fixed-income traders on Wall Street. Until recently, natural-resources traders were primarily found within sizeable corporations trading internally on proprietary desks. Due to current global investor demand to diversify portfolio exposure into hard assets, many of these traders have been able to leave their former employers to engage in entrepreneurial trading ventures, including setting up their own hedge funds. While many of these individuals may possess superior experience in trading natural-resources markets, most have little, if any, practical experience managing a business. Historically, these individuals were able to focus solely on trading without worrying about the details of developing and running an entire business. The demands of growing and managing a business can substantially detract from the trader's ability to focus on the markets. The transition is certainly not impossible, but it definitely requires significant consideration when assessing the viability of a new firm.

Loss of Information Edge

In addition to a potential lack of experience in running a business, one factor that may further impede the success of a newly launched natural-resources trading firm is the loss of information flow. Such a potential problem mirrors what many foreign-exchange traders face when leaving large banks. Many traders in sizeable organizations benefit from extensive information flow, and many of these traders do not even realize the degree of their dependence on such information. Once removed from the deep information channels, many formerly successful traders may become incapable of trading profitably. In some cases, such a scenario is readily apparent as a trader is not ever able to replicate the performance that he or she generated while employed at a large firm. In other instances, the deteriorating effects of reduced information flow are more difficult to detect. In these scenarios, it appears at first that a trader is unaffected by their new situation, and that they are able to perform as well as they had historically. After a period of time (in some cases even years), the trader's performance dissipates dramatically. This phenomenon is often caused by the fact that when an individual leaves an institution, they may be able to maintain several key relationships with former colleagues, clients or counterparties that are still in a position to provide valuable information flow for some while. As time passes, however, this information flow can and often does dwindle for various reasons such as colleagues leaving their positions, or the independent trader is unable to reciprocate with valuable information, thereby leaving these traders unable to perform as they had historically. In order to avoid such a situation, flow traders need to find either new return drivers or become large enough so that they can obtain similar information themselves before their relationships expire.

Unverifiable Track Record

An additional problem that exists with many natural-resources traders, which is also a result of leaving the employment of a large institution, is that many of these traders are unable to either demonstrate or calculate the track record generated while trading for their previous employer. For example, some traders are limited by non-disclosure agreements from displaying their trading performance to anyone external to the firm. In addition, some proprietary traders are given trading lines without knowing their underlying funding. As such, calculating a rate of return becomes impossible because the numerator is known without knowing the denominator. For example, a trader who makes a \$1,000 average daily profit on a 1-million dollar account size is far more profitable than a trader who makes the same dollar amount on a 2-million dollar account. Many proprietary traders are only able to express their profits in dollars. As such, a profitable proprietary trader may have false confidence in his or her capabilities to be successful as an asset manager.

Fraud

Another form of business risk is fraud. Fraud is perhaps the most damaging risk to the industry and the most difficult for the investor to withstand because it is intentional and generally receives enormous media attention after the deceit unfolds. The vast majority of traders are not frauds, but it would be naive to think that there are currently no hedge funds that are practicing deception. It seems that the best protection against fraud is a thorough background check and a heavy dose of common sense.

In regards to the background check, there are several financial industry service providers that will verify that a person is who they say they are and that the manager has not misled his or her clients about educational credentials, bankruptcies, past criminal charges, and other important personal details. This information generally exists in the public realm, and with the Internet and enough perseverance, investors can frequently perform this work themselves, but it is often more cost and time efficient to utilize a service. Additionally, for registered CTA's, one can access a database managed by the National Futures Association (www.nfa.futures.org) to check if a trader has had any history of violations with the NFA. The aforementioned steps are necessary in any responsible due-diligence effort, but no amount of work in this area can guarantee against fraud. A clean background check does not unequivocally indicate that an individual is not a fraud, as a criminal with a clean record is simply one who has not yet been caught.

Perhaps the most important process in avoiding fraud is to use common sense. This assertion is easier stated than accomplished. The clues in this process or pieces of the puzzle are found in the mundane details of a trader's story. The moral of the story is that if the details do not add up logically, avoid the investment at all costs.

Each detail that does not act to confirm the material assertions that a trader makes to an investor or potential investor in the due-diligence process is commonly considered a red flag. Red flags can be found in any part of a trader's story. The following examples are just a few of endless scenarios to demonstrate that what is missing in a trader's story can be potentially even more important than what is found in a background check.

Missing Performance

A game occasionally played by trading firms (generally with systematic trading programs) is that they may have a fund or many funds that have established track records that have become lackluster in performance over time. As interest in their firm from the investment community tapers off, they almost magically present an audited track record with tremendous performance just in the nick of time to spark interest in their business and to generate new investment. What appears to be legitimate, due to the audit, may not really be as forthcoming when the entire scheme is uncovered. In this scenario, the trader may have had many track records funded with his or her own money and might only be showing the most successful trading program while hiding many losing track records. In light of this cherry-picking scenario, an investor should inquire about any missing performance by asking the trader to confirm and verify that only one track record existed.

Verification can be made by requesting that the trader make all of his personal brokerage accounts and personal tax records available to the auditors to confirm the sole existence of the track record in question.

Missing Assets

There are many reasons to determine whether a trader has personal assets invested in his or her trading strategy, but the following example is perhaps the most extreme example that this author has experienced. On one occasion, a trader presented himself as being a former senior executive at a major hedge fund. Such a position should have generated substantial personal wealth for the trader. Despite the fact that the trader made a very convincing argument to fund a start-up trading operation and had a tremendous pedigree within the industry, it was not logical that he was unable to at least partially fund the start-up from his personal wealth. The trader had intricate explanations as to why his personal assets were unavailable, but it seemed illogical or suspicious that such an experienced individual needed seed investors. Several years later it surfaced that this trader had found not only seed investors but also hundreds of millions of additional investor capital that he later lost in high-risk trades in which losses were concealed. It turned out that the manager had lost all of his own money in an insatiable appetite for taking risk in the markets and had subsequently done the same with countless investors in one fund after another.

Unnecessarily Complicated Corporate Structure

This example seems obvious after the Enron collapse, but periodically traders present unnecessarily complicated corporate structures without valid explanations of the existence of multiple firms. In many cases such structures are designed to disguise true ownership or to mask conflicts of interest.

Business Risk Mitigation

The best way for a due-diligence analyst to mitigate business risk is to become "hands on" with the infrastructure of the candidate investment firm. Such an assertion might sound absurd, but that is precisely what an investor is able to accomplish by investing through a managed account. Most established financial-market hedge funds resist offering managed accounts, but that is not the case for the majority of CTA's and many natural-resources hedge funds as well, due to the start-up nature of many of these firms.

In a managed account scenario, the risk of fraud is virtually eliminated because no money is transferred to the trader. Only a "trading line" via a limited power of attorney to trade the account is provided to the trader and, as such, assets remain at the brokerage firm and out of control of the trader. Further, with a managed account an investor is able to reduce dependence on the infrastructure of the trading firm. The investor is able to verify the profit-and-loss and cash-to-margin levels of the account without relying upon calculations made by an unfamiliar back office managed by the trader or outsourced to a third party. While a managed account offers complete transparency into an investment, it is not a perfect solution as it potentially creates administrative

difficulties for both the trading manager as well as the investor and does not have limited liability for the investor.

A fund investment is more convenient for both the trader and the investor to administer, but it puts 100% of the control of the transparency of the investment in the hands of the trader. In this scenario, most investors accept what information the trader disseminates to them at face value. If the trading manager is unwilling to give the investor direct transparency, the next best source of verification is to confirm what the trader states with as many third-party service providers as possible including, but not limited to, the prime broker, auditor, administrator, legal counsel and custodian of the fund. Do note that the trader is a client of the service provider and often service providers are reluctant to disseminate information on paying customers. Despite the business relationship between the trading firm and the service providers, an investor can use any and all statements made by service providers to corroborate what the trader has stated.

In either a fund or in a managed account investment, an investor must determine that a trader has an adequate internal infrastructure. As mentioned above, many natural-resources traders have little experience in managing businesses. As such, in order to maintain focus on the markets, a trader must either hire an experienced team of professionals or outsource operational responsibilities or some combination of the two options. A red flag in this area certainly occurs when all operational responsibilities fall on one or a few internal individuals. In such cases, these firms are generally unable to sustain any sort of growth efficiently or responsibly.

Due-Diligence Conclusion

We conclude this section by noting that when confirming all material assertions made by an investment manager, one must remember that the use of logic and persistence are certainly an investor's most valuable weapons. There is no Holy Grail or sure-fire method to uncover all of the risks in an investment opportunity. The best practice is to request proof for each and every major assertion a trader puts forward to potential or existing investors. If, for example, a trader states that they have conducted research to validate the use of Value-at-Risk, request to see that work on the spot. If a pattern develops that demonstrates that a trader cannot back up his or her claims, the best way to avoid trouble is obvious: avoid that trader.

CONCLUSION

In this article we discussed how an investor could go about investing in the commodity markets, especially if that investor believes that we are in the midst of a historic industrial revolution in developing Asia, which could provide numerous opportunities in the natural-resources markets.

An investor can cheaply obtain long-term exposure in the commodity markets through an indexed investment. And then for further value-added, that investor could choose to invest in a specialist natural-resources fund-of-funds, which may be able to take advantage of opportunities that an indexed investment could miss.

An investor may decide to invest through a fund-of-funds for his or her active commodities allocation because this type of structure would typically be sufficiently diversified so as to limit the idiosyncratic, operational risk of an individual commodity manager.

A fund-of-funds manager in turn will attempt to limit the market risk of his or her overall portfolio by investing in diverse investment strategies and by choosing managers with a strong risk-management culture.

Finally, an experienced fund-of-funds manager will employ a number of common-sense tools to mitigate the risk of investing in commodity firms that are frequently start-ups in this emerging investment field.

ENDNOTES

Hilary Till would like to note that the risk-management ideas noted in this article were jointly developed with Joseph Eagleeye, co-founder of Premia Capital Management, LLC, <http://www.premiacap.com>. She would also like to thank Galina Kalcheva for assistance in risk management research.

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