

Look Beyond the Styles of Commodity Trading Advisors

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Funds of funds managers and their investors can benefit by incorporating commodity trading advisors (CTAs) into portfolios holding traditional investments like equity and fixed income instruments as a way to take advantage of their historically low correlations to traditional investments (Edwards and Liew [1998]).

The general perception of CTAs is that they trade commodity futures. Unlike what the name suggests, most CTAs trade financial futures for the large part of their portfolios. In fact, CTAs that trade commodities as the majority of their portfolios are rare, perhaps more than 10% of the entire CTA universe,¹ and these are the discretionary CTAs.

Commodities are often characterized as defensive asset classes because of their low-to-negative correlations to traditional assets like stocks and bonds, particularly in unanticipated inflationary periods. CTAs, on the other hand, exhibit similar characteristics in relation to stocks and bonds particularly in declining markets. CTAs are attractive to investors, as incorporating this class of assets into any diversified portfolio will serve to achieve a substantial degree of overall risk reduction with a lower cost incurred (Kat [2002b]).

CTAs are very often compared to Global Macro (GM), even though the latter belongs to the hedge fund family. While CTAs and GM bear unique characteristics, both are effective diversifiers, in varying degrees, making portfolios more efficient by improving their risk-and-

return profiles, as suggested in Exhibit 1.

In this article, the distilled thoughts and further analysis of the issues presented are based on a brief study conducted through conversations with several market practitioners primarily in the funds of funds industry, commodity pool operators (CPO), and CTAs.

Very often, investors' funds can be placed with CPOs, acting as asset gatherers, who, in turn, make allocations specifically to CTAs. By definition, CPOs and funds of funds do not trade themselves and, in this context, only CTAs do.

The purpose of this article is to lay out the common criteria in assessing CTAs for allocation purposes. First, the styles of managers relative to the capacity will be discussed, followed by their risk management methodology and current performance measurement tools. The latter part of the article will focus on the improvements on the traditional performance measurement followed by a brief account of how to identify diversifying assets in creating optimal portfolios.

BASIS FOR SELECTION

Among common criteria to consider when deciding on allocations made to CTAs are managers' performance, risk management methodology, and CTAs' capacity to absorb new or additional funds.

EXHIBIT 1

Correlation Matrix of CTAs Sub-Indexes, GM, Stocks, and Bonds for the Period from January 1992 to May 2004

	Discretionary	Trend-follower	Systematic	GM	S&P 500	Tsy 10-year
Discretionary	1.00					
Trend-follower	0.92	1.00				
Systematic	0.96	0.98	1.00			
GM	0.08	0.00	0.01	1.00		
S&P 500	0.29	0.22	0.27	-0.06	1.00	
Tsy 10-year	0.96	0.90	0.94	0.05	0.30	1.00

Sources: CISDM, Standard & Poors, Ryan Labs.

CAPACITY

CTAs need to have enough capacity to absorb new money. In general, CTAs have much smaller assets under management than hedge funds. The current AUM estimates are \$100 billion for CTAs and \$820 billion for hedge funds.

The larger the capacity of the CTA, the more able it is to accommodate the broadest range of market sectors. Styles do have a bearing over managers' capacity. Broadly speaking, long-term systematic CTAs have a larger capacity than short-term systematic managers. Systematic CTAs are quantitative-driven, relying on models to spot and follow price trends. Short-term systematic managers are set to capture price fluctuations. Some CTAs make trading decisions in a discretionary way purely according to traders' judgments in the absence of models. A thematic approach is taken based on fundamentals. The capacity of discretionary CTAs tends to be smaller with a narrower range of market sectors. CTAs also can be systematic with a fundamental overlay. As the number of assets increases, CTAs are likely to be systematic. This may have no relevance to the asset size but more to do with the number of assets.

Systematic CTAs can operate independently of specific knowledge of the commodity markets as their focus is on identifying price trends. Discretionary CTAs operate with great dependence on commodity market knowledge. Human judgments are the key in discretionary CTAs. Unlike systematic traders, discretionary traders have flexibility in capturing events somewhere along the

trends. Examples of new events are the hand-over in Iraq, the upcoming Presidential election, or the sudden outbreak of an epidemic like mad cow disease. These new and extreme events very likely represent the fourth moment of a distribution, i.e., the fat tails, synonymous with kurtosis. The shapes and the sizes of the kurtosis may seem more sensitive to the changes in discretionary trading strategies allowing the spontaneity in response to new events. In contrast, systematic traders might have been following through specific price trends and unable to capture the sudden opportunities which come their way. Kurtosis is expected to be flatter in systematic traders. Long-term systematic CTAs may experience directional bias, and this affects returns. Exhibit 2 illustrates a broader picture of CTAs as the CISDM managed futures index is used. Both LT skewness and kurtosis of CISDM managed futures experience a substantial increase over time compared with their last five-year figures.

AN IMPORTANT DISTINCTION

A distinction needs to be drawn between long-term systematic CTAs and GM, as their return streams are often compared. In broad terms, technical analysis plays a prominent part in the decision making process in CTAs, more so among the short-term traders, whereas the decision making process in GM is more fundamentally driven. The underlying assets of both strategies, in general, revolves around equity, fixed-income, currencies, and commodities. Although both styles trade financial and commodity futures as their underlying investments while responding to the

EXHIBIT 2

Comparative Statistics of CTAs and GM with Respect to Mean Returns, Standard Deviations, Skewness, and Kurtosis for the Period from January 1990 to May 2004

	GM	Managed Futures (CISDM)
Mean Returns		
Full Period	1.32	0.73
Last 5 Years	0.80	0.67
Standard Deviations		
Full Period	2.47	2.78
Last 5 Years	1.96	2.75
Last 5-year		
Skewness	0.48	0.04
Kurtosis	1.06	-0.34
Long Term		
Skewness	0.28	0.74
Kurtosis	0.40	2.85

same prominent trend, the timing of the trade executions under the two strategies can be somewhat different.

In broad terms, GM is discretionary in nature, with traders anticipating trends in their development. Positions will be taken even before a trend starts to take shape, with traders closing out positions even before the trend starts to tail off or change, i.e., before the market goes against them. Regarding long-term CTAs, traders start to take positions after the price trends start to take shape, and they will participate in following and capitalizing on such trends until they phase out or before new ones kick in. One caveat against this strategy is that losses may be incurred if traders are unable to get out of the position because of the lack of liquidity in the markets, before markets start to turn against them.

GM has more flexibility in formulating its trades: they allow for faster reaction time for getting in and out of positions. Long-term CTAs, on the other hand, may benefit from taking positions in well-identified trends and follow-through. The caveat is that traders must get out of the position when the existing trend starts to change to avoid losses.

However, long-term systematic CTAs and GM are very likely to engage in the same trades given the under-

lying themes are quite similar and most trades can span from several months to a year. On that basis, there may be moments of overlap or crossovers resulting. In comparing discretionary CTAs against GM, although the two are discretionary, CTAs tend to have bigger commodity futures positions than GM. Again, to get a full understanding, one has to look beyond the styles.

RISK MANAGEMENT METHODOLOGY

Risk management methodology aims to preserve capital and create more certainty in return streams (Ineichen [2004]). The methodology can split into fund structure, risk management rules, and decision-making models. With respect to fund structure, investment portfolios consist of assets representing different markets and sectors. It is important to identify where the concentration of risk in any single asset class lies. Maximum exposure per trade, maximum exposure per sector, and the frequency of trades all have bearings on portfolio diversifications. It is also important to see how traders express themes through the assets traded and be able to identify their relevance.

Strict risk management rules should be strongly adhered to and not abandoned. Volatility threshold is considered a key parameter among the trading rules. Other parameters include trailing stops and stop-loss limits. There are managers who have trading rules that are more performance-oriented, stating that targeted volatility should not exceed the targeted maximum drawdown. Of course, downside returns are the ones that investors want to avoid. Target drawdown, target Sharpe ratio, and returns can also be set.

As to systematic CTAs, funds of funds managers ought to understand how the trading models work and their inherent limitations. If models fail to work under certain circumstances, what approach will managers take in response? It is imperative to understand how traders trade and whether stop-loss models are in place. Many managers find it easier to anticipate and analyze how the models will work than to anticipate how discretionary traders will trade in a given situation.

PERFORMANCE

Various key ratios are used to quantify performance, in addition to managers' track records. Drawdown, referring to losses, is the ultimate threat to the performance and survival of any money manager. Drawdown can be

viewed on a stand-alone basis or relative to other parameters. On a stand-alone basis, maximum drawdown, often known as worst drawdown, defined as the largest peak-to-trough percentage loss throughout the life of the funds, is the main indicator (Gregoriou and Rouah [2004]). The longer CTAs have been established, the more likely they will have maximum drawdown simply because they have been through a longer cycle, but it again depends on each manager's performance and how risk is controlled. The length of recovery period from maximum drawdown should correspond to investors' risk tolerance. When expressed as a ratio, average monthly returns can be measured relative to the worst drawdown. The target ratio should be no less than 1:1, and if it is, the investment is not perceived to be economical when maximum losses exceed returns generated.

In most cases, individual investors are interested only in trading profits, not performance against benchmarks. Benchmarking may be relevant to institutional investors but less likely as an appropriate measurement for CTAs. For example, CISDM Trading Advisor Indexes and Barclay CTA Indexes do not distinguish performance among short-, medium-, and long-term traders; hence it is difficult to make pertinent comparisons. In addition, because reporting is voluntary and traders may elect not to be included so as to avoid transparency, an index often may not provide an accurate representation of the entire CTA universe (Kat [2003]). Investors should consider that the portfolio returns may not be tracking index returns as closely as they wish, or, in other words, may not be measuring against the index as accurately as they expect when measuring outperformance because of the presence of tracking errors. They are often considered noise or a residual risk which investors must take into account.

The Sharpe ratio is by far the most common measure of performance in the investment community, but the traditional Sharpe ratio has its drawbacks.

$$\text{Traditional Sharpe Ratio} = \frac{R_p - R_f}{\sigma}$$

where

R_p	=	Return on the portfolio
R_f	=	Risk-free rate
σ	=	Standard deviation

Variance is the dispersion of investment returns from their mean. In this calculation, no distinction is made

between upside and downside deviations. The Sharpe ratio uses the standard deviation—a square root of variance in the denominator; hence the same limitation applies (Gregoriou and Gueyie [2003]).

For more details on the issue of the adequacy of standard statistics in the evaluation of hedge fund performance, see Kat [2003]. Some managers use the traditional Sharpe ratio for upside risk and use other measures like the Sortino ratio for downside risk. The Sortino ratio is calculated as the excess return over risk-free rate over the downside semi-variance. This is a measurement of return deviation below the minimal acceptable rate. The Sortino ratio is only penalizing “bad” volatility. This ratio allows investors to assess risk in a better manner than simply looking at excess returns to total volatility as it looks at how often the security prices fall as opposed to rise in price.

Given the traditional Sharpe ratio based on the assumption of a normal distribution under the Markowitz mean-variance approach, the standard deviation as a symmetrical measure does not focus on downside risk. It does not take into account the third and the fourth moments of a distribution, i.e., skewness and fat tails. In all, a normal distribution ignores the extreme downside and fails to reflect all risks.

The Phi-Alpha Paradigm of FinAnalytica (Rockafellar and Uryasev [2000]) is an improvement over the Markowitz mean-variance approach. A multivariate stable distribution modeling is used as opposed to normal distribution in order to capture the extreme downside. As a risk measure, the robust Sharpe ratio can be used in place of the traditional Sharpe ratio when only limited return data are made available. Very often, the absence of a long trading history will result in sparse data. For managers with a long trading history and a larger pool of data, the Stable Tail Adjusted Return Ratio (STARR), created under the Phi-Alpha Paradigm, can be used. Unlike the traditional Sharpe ratio, the STARR ratio takes into account such risk factors as skewness and tail risks, and hence reflects a more realistic risk position.

Exhibit 1 illustrates the correlation matrix between CTA sub-indexes, GM, stocks, and bonds for the period from January 1992 to May 2004. CISDM CTA sub-indexes are used and some CTA sub-indexes have crossovers with respect to their strategies.² The correlations of returns vary but, generally speaking, the correlations of all three CTA sub-indexes to stocks are less than 0.29 and even less than 0.08 to GM. One interesting observation is that bonds are more correlated to all three

CTA sub-indexes with the lowest correlation being 0.90, compared with stocks being 0.30 over that period. One possible explanation is that asset composition in the CTA sub-indexes is heavily dominated by Treasury instruments and financial futures rather than commodity futures over that period. The correlations of GM to all three classes are very low, less than 0.08. Care should be taken in using correlations to determine diversifying assets given that the test is heavily dependent on the time periods and that it is possibly more the asset compositions behind the styles that have a bearing on the performance outcomes. For further details on correlation for measuring dependence, see Kat [2002a].

CONCLUSION

Funds of funds managers and their investors can benefit by incorporating diversifying assets like CTAs and GM into portfolios holding traditional investments. This will make the portfolios more efficient by further improving the risk-and-return profiles. The limitations in current performance measurements like benchmarking and the traditional Sharpe ratio should be acknowledged and further improved upon. The main challenge in analyzing CTAs and other managers like GM is to understand beyond their styles by looking into the asset compositions, trading strategies, trade executions vis-à-vis timing, sectors, and sizes, and the established risk control rules.

ENDNOTES

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¹The author has made attempts to cross-check the market shares of systematic and discretionary traders in the CTA universe, but no official figures are made available. The figures stated in this article are estimates obtained from market practitioners. As of May 31, 2004, out of a total of 282 CISDM index constituents which were made up of discretionary sub-index (14.2%), trend-follower sub-index (19.9%), and systematic sub-index (65.9%). As a result of other overriding factors, total index constituents do not necessarily represent the entire CTA universe.

²The systematic sub-index represents the contrarians' approach, relying only on trading models. In the trend-fol-

lower sub-index, both discretionary strategies and models are used but with a heavier weighting on traders using models. In the discretionary sub-index, both discretionary strategies and models are used but with a heavier weighting on discretionary strategies. As to GM, only month-end median returns are used to derive this correlation calculation. The underlying reason for using median returns, i.e., 50% quartile of the month-end returns, is to mitigate the outcome of extreme returns.

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