How to reduce hedge fund portfolio risk: Is Short-Term Trading a good solution?

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With only a few exceptions, alternative investments in 2008 proved as vulnerable as equities to the rapid deterioration of global economic conditions. Instead of providing effective diversification as stocks declined 30-40%, many previously reliable hedge fund strategies suffered tremendously, some even more than equity markets. Yet certain styles were able to provide significant protection to multimanager hedge fund portfolios, and portfolios containing these styles vastly outperformed industry norms.

Evaluating and distinguishing strategies and funds can pose challenges: What are the characteristics of effective

protective strategies, which hedge fund styles provide the best protection, what are their risks and rewards, and how should managers in these styles be evaluated? This article begins with a set of criteria for evaluating protective strategies, and examines several popular hedge fund strategies in that context. Specifically, we will consider Short-Bias Funds, Global Macro, Relative Value, Equity Market Neutral, Trend-following (Commodity Trading Advisors), and Short-Term Trading. Following this, we take a close look at Short-Term Trading, since this strategy appears to meet many or all of the criteria for effective portfolio protection as well as appearing to offer highly-attractive stand-alone performance.

Part I: What are the qualities of an ideal protective strategy?

The most important quality of a protective strategy is simple: it must actually be consistently protective. One way to evaluate the consistency of protection is to measure the correlation of the strategy to your portfolio over time (negative correlation being better, of course). For example, Short-Bias Funds have a -0.7 historical correlation to Funds of Funds, using monthly returns since 2003 (source: HFR). In contrast, Relative Value strategies, which seek to profit from valuation discrepancies between related securities and are often considered market neutral or in the case of Convertible Bond Arbitrage, to be «long volatility,» are actually +0.9 correlated to Funds of Funds and +0.8 correlated to equities (S&P 500) over the same period.

Commodity Trading Advisors (CTAs), who use futures contracts and options to trade diversified global markets usually in a trend-following style, were among the best performers in 2008 (Newedge CTA Index +13.1%), and particularly in the fourth quarter (+9.0%). However, these managers will tend to have a varying correlation to equities and hedge fund portfolios, and are actually positively correlated to Funds of Funds since 2003 (+0.3). This is because most CTAs tend to be long equities during bull markets (and Funds of Funds are highly correlated to equities, on average). During the first stage of equity market corrections, CTAs rarely provide protection. Moreover, the historical negative correlation of CTAs to equities derives more from their maintaining long fixed income positions over time (particularly during the big fixed income rally from the 1980's through 2004). During flights to quality in equity corrections, CTAs already owned the «safe» fixed income securities that investors flock to in times of stress. The result is that CTAs tend to have positive correlation to equities during periods of rising interest rates, and negative correlation to equities during periods of falling interest rates.

Short-Term Traders have been more consistently protective for longer periods of time. On average, these managers have had a -0.2 correlation to Funds of Funds and a -0.3 correlation to the S&P 500 since 2003. Moreover, some Short-Term Trading funds have provided even more reliable protection during equity declines.

Table 1 I Correlations of hedge fund strategies to funds of funds & S&P500

	Short-Bias Funds	Global Macro	Relative Value	Equity Market Neutral	CTA: Trend-following	Short-Term Trading
Monthly correlation to Funds of Funds since 2003:	-0.7	+0.6	+0.9	+0.7	+0.3	-0.2
Monthly correlation to the S&P 500 since 2003:	-0.9	+0.2	+0.8	+0.3	0.0	-0.3

Source: HFR, Newedge, AlphaMetrix

Negative correlation: A common misconception

To many, a strategy with negative correlation means «When my portfolio is up, the strategy is down, and when my portfolio is down, the strategy is up.» Since one expects the portfolio to make money, a negatively-correlated strategy therefore seems like it will have a negative return.

In actuality, a strategy with negative correlation to a portfolio means that the strategy tends to do worse relative to its average when the portfolio does better, and better relative to its average when the portfolio does worse. The key is that a negatively-correlated strategy can also have positive average returns.

For example, the S&P 500 rallied 21% from 2005 to 2007. Our Negative Correlation Fund was actually up 25% in this period while maintaining a -0.7 daily correlation to the S&P 500.

On the other hand, it is possible for a fund to lose money during a very positive year for equities, and have a positive correlation to equities.

Correlation is about a strategy's relative outperformance or underperformance to its average return, not about whether the strategy makes money or not.

A second key quality of a protective strategy is that it is substantially protective, providing big positive returns during the toughest periods. While it can be useful just to sidestep tough periods (e.g. «we preserved capital by providing returns of +0.1% in October 2008»), a strategy that returns close to zero in the most difficult months

Table 2 I Performance of hedge fund strategies in worst FOF months

	Short-Bias Funds	Global Macro	Relative Value	Equity Market Neutral	CTA: Trend-following	Short-Term Trading
Average return in ten worst months for FOFs since 2003:	+3.5%	-0.7%	-2.1%	-0.9%	-0.2%	+1.8%

Source: HFR, Newedge, AlphaMetrix

is like flood insurance that refunds its premium when the floodwaters rise – nice, but not particularly helpful if you've got to replace all your furniture. A truly protective strategy should not only be consistent, but also able to «save your month» during the most challenging months for the rest of your portfolio. For example, Short-Bias Funds returned a very helpful +14.7% in October-November 2008 as stocks dropped 23.2% and Funds of Funds dropped 8.3%.

The chart below shows the average performance in the ten worst months for Funds of Funds since 2003. Seven of these months occurred in 2008, and nearly all of them coincided with large declines in the equity markets. Not surprisingly, the strategy with the strongest average performance in these months was the strategy with the most consistent negative correlation to equities – namely, Short-Bias Funds (+3.5%). Short-Term Traders also performed well, with average performance of +1.8% and positive returns in all ten months. Short-Bias Funds were less consistent, up in just eight of the ten months.

Ideally, a protective strategy should also be an attractive stand-alone investment, both in difficult periods and over the long-term. For instance, selling S&P futures can be a useful tactical allocation, but may not make sense as part a long-term portfolio allocation scheme since equities do tend to rise over time. Equity Market Neutral and Relative Value funds both posted positive returns from 2003 to 2007. However, large losses in 2008 suggest that these strategies do not offer reliable protection during prolonged market dislocations. And while Short-Bias Funds were extremely helpful in 2008, the strategy actually posted negative annualized returns (-3.8%) in the previous five years.

Table 3 I Performance of hedge fund strategies long-term, and 2008

	Short-Bias Funds	Global Macro	Relative Value	Equity Market Neutral	CTA: Trend-following	Short-Term Trading
Annualized return: 2003 (or inception) to 2007	-3.8%	+10.3%	+8.5%	+5.1%	+6.8%	+7.7%
2008 return:	+28.3%	+5.7%	-16.4%	-6.1%	+13.1%	+16.6%

Source: HFR, Newedge, AlphaMetrix

Another desirable quality of a protective strategy is that it is positively skewed. While «skewness» is often a statistical buzz-word, the concept is very simple: a protective strategy should provide larger upside returns during the «tough» periods, and smaller losses when it faces tougher conditions (and the rest of the portfolio does well). An insurance policy is a good example of a «skewed» return – for a small monthly cost it promises a large payout when a loss occurs. In the world of hedge funds, if a protective strategy makes 5% during a 10% decline for the stock market, you would hope that it would not lose 5% the next month if the stock market recovers its losses by rallying 11%. Selling S&P futures is an example of a technique that offers symmetrical, rather than positively skewed returns, and are less useful before of their negative overall expectation.

One way to measure skew is to compare the average performance of the strategy in up months and down months for Funds of Funds. It is clear from the chart that the only real «hedging» strategy among the «usual suspects» are Short-Bias Funds (+2.4% in down months and -1.0% in up months). As you can see below, Global Macro, Equity Market Neutral and Trend-following CTAs are actually down on average when Funds of Funds lose money, calling into question the long term protective ability of these three popular strategies. Short-Term Trading was profitable in both up months and down months for Funds of Funds.

Table 4 I Hedge fund returns vs. FOF performance in up-months and down-months

	Short-Bias Funds	Global Macro	Relative Value	Equity Market Neutral	CTA: Trend-following	Short-Term Trading
Average performance: Down months for FOFs since 2003	+2.4%	-0.6%	-0.8%	-0.4%	-0.8%	+1.0%
Average performance: Up months for FOFs since 2003	-1.0%	+1.5%	1.5%	+0.6%	+1.4%	+0.6%

Source: HFR, Newedge, AlphaMetrix

The factors driving the protection should also be causally linked to your risk factors. Does it make sense that the strategy should provide protection in the future? For example, it stands to reason that during declines in

the equity markets, a strategy that spends most of the time short equities would be likely to profit, since the decline in equities causes the strategy to make money. A counter-example would be a strategy that sells equity call options. While this may be profitable in many equity market declines, a concurrent rise in implied volatility could cause these options to rise in value even if the stock market falls. This actually happened on October 19, 1987, where implied volatility rose so much that many calls actually increased in price during the 25% one-day selloff.

For the last 20+ years, declines in the equity market have reliably been accompanied by high day-to-day volatility, though not every decline has been accompanied by long-term market trends. Consequently, Short-Term Traders, who thrive on high day-to-day volatility, have been more consistently protective than CTAs, who rely on the presence of longer-term trends.

An ideal protective strategy should be liquid. Particularly in the current environment where many managers have used floodgates to limit redemptions, a protective strategy would ideally offer the ability to be liquidated quickly under all circumstances. Another desirable quality is that the strategy employs liquid and easily-valued securities, so that its performance may be monitored closely and relied upon for accuracy.

Finally, an ideal protective strategy should be uncorrelated to other protective strategies. A low correlation to other protective strategies allows a strategy to be combined with other defensive allocations to further reduce portfolio risk.

To summarize, the following chart illustrates the effectiveness of each protective strategy using the criteria discussed above. It appears that the most useful protective strategies are short-biased funds and short-term traders. While global macro funds and trend-following CTAs can be effective portfolio diversifiers, since they do tend to have different risk factors than many other strategies, they do not appear to provide reliable protection.

Table 5 I How to reduce the risk of multi-manager hedge fund portfolio: Characteristics of an ideal protective strategy

Source: RGN

Part II: A closer look at Short-Term Trading, its benefits and risks

While Short-Biased Funds are a well-understood and common component of hedge fund portfolios, Short-Term Trading is less well-known and has only recently been considered a separate asset class, particularly with the creation in 2008 of the NewEdge Short-Term Trader Index («STTI»). Yet the strategy is certainly not a brand new trading style. In fact, several members of the STTI, including our own program, began trading more than 15 years ago. I estimate that approximately USD30-50b is currently invested in Short-Term Trading funds.

While the strategy bears certain similarities to more traditional CTA and Global Macro approaches, particularly in its markets traded, there are several key attributes of Short-Term Trading that distinguish it from its relatives in those two styles. Many of these features are quite beneficial for investors, yet several potential risk factors should be considered as well.

Typically, Short-Term Traders use quantitative or discretionary methodologies to identify temporarily oversold or overbought markets, and target opportunities that last anywhere from a few seconds to a few weeks at a time. Using price and other market data often sampled at very high frequencies, managers employ sophisticated algorithms or human discretion to make their trades, and frequently employ straight-through automated processing for their trade execution. The rationale for these trades can vary, from short-term trading range breakout strategies to arbitrage-type mean-reversion trades, and even trades based on the cognitive biases present in the human brain's hard-wiring, in our own case.

The effective duration of positions is usually a few days at a time, rather than the duration of many weeks to many months common to Global Macro and CTAs.

Short-Term Traders typically have near zero or negative correlation to traditional and alternative investments,

even in extreme market conditions when most markets and strategies become highly correlated, during big market trend reversals, and during prolonged bull markets in equities or bear markets for fixed income. In contrast, CTA and Global Macro strategies have tended to become positively correlated to equities in uptrends for stocks or downtrends for bonds, and have also had some difficulty during sudden trend reversals, such as May 2006 or July 2008.

Short-term managers tend to perform best when markets are highly volatile, a situation that often coincides with the most difficult periods for traditional and hedge fund portfolios. The recent surge in day-to-day volatility has created a particularly attractive environment for these high-frequency traders. In contrast, CTA and Global Macro strategies do their best when markets move substantially over a long period, but daily volatility is low (i.e. 20 small up days in a row). While these conditions can coincide, as they did in the fall of 2008, they do not always occur simultaneously. Short-Term Traders do not require a particular absolute level of market movement, nor is the strategy explicitly «long-volatility» as a put-option buying specialist might be.

Short-term traders usually focus on the most liquid instruments in the equity, fixed income, currency and commodity sectors, and may trade a smaller set of markets than do many CTAs. Trades generally occur in fixed income, equity, foreign exchange and commodity futures and options, as well as cash foreign exchange. Some managers also trade cash equities and/or other over-the-counter markets. Overall, the securities bought and sold tend to be extremely liquid, high volume, and exchange-traded. Many managers keep 80-90% of their assets in cash at all times. In addition, because of their rapid portfolio turnover, Short-Term Traders, like CTAs and many Global Macro managers, can offer very attractive liquidity terms to investors. Many firms offer managed accounts with daily liquidity, and others have monthly, weekly or even daily liquidity fund share classes available.

A unique characteristic of Short-Term Trading is the great diversity of styles within the asset class, resulting in an extremely low correlation among the various managers. For instance, types of high-frequency trading strategies include foreign-exchange only, short-equity biased, trend-biased and others. Managers will also differ in their mean-reversion or momentum orientation, and may have vastly divergent average holding periods. Even within the Short-Term Trading universe, the higher frequency managers, such as those that focus on intra-day trading, will tend to be less correlated to trend and to each other, and more correlated to volatility.

The accompanying chart shows the pair-wise correlations among the 23 components of the Alternative Edge Short-Term Traders Index as of July, 2008 (source: AlphaMetrix). Possibly uniquely in all the hedge fund styles, many Short-Term Traders are negatively correlated to each other.

Because of the very low correlations among different short-term strategies, an allocation to a portfolio of high-frequency traders will provide much more «diversification» than a similar allocation to a basket of Short-Bias Funds, CTAs or Global Macro. Those three strategies can all have high exposure to systematic risks. For example, most short sellers will lose money in equity bull markets, regardless of their stock-picking ability. And trend-followers can become highly correlated to particular markets and therefore to each other, as they tend to enter same positions during the most extreme trends. For example, the Newedge CTA Index, which consists primarily of trend-following managers, became +0.6 correlated to oil prices in mid-2008, as nearly all trend-followers had on large long energy positions. A portfolio of Short-Term Traders, however, has little exposure to the longer-term direction of markets. Both the short holding periods and the large number of independent trades help to limit exposure to all factors, except perhaps realized volatility.

A very attractive feature of short-term trading is the predictable profile of returns (i.e. risk and correlation). Like CTAs, Short-Term Traders' positions are volatility-adjusted, so managers typically trade in smaller size in more volatile markets. The strategy can be modeled for decades in the past, allowing relatively reliable estimates of market risk and asset class correlation. When market conditions change quickly, the short-term nature of the strategy allows managers to immediately adjust their trading accordingly. This is very different from Long-Short Equity, for example, where a change in equity volatility does not always result in a change in overall leverage.

One barrier for new investors can be the difficulty in evaluating traders. First, highly divergent strategies among managers make it difficult to line them up against each other for comparison purposes. Second, short-term strategies are highly dynamic and will tend to evolve over time, so historical returns may not be indicative of how today's portfolio would have performed. Third, there is typically a lack of transparency into the underlying trading systems, which are highly proprietary trade secrets.

The rapid turnover of Short-Term Traders also means that market impact is a critical factor, and these programs may be challenging to scale. There are very few Short-Term Trading managers with more than USD1b under management, and

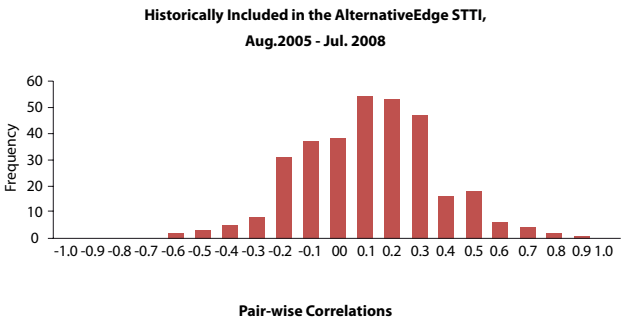
only one which has successfully managed USD10b (James Simons' Renaissance Technologies, whose Medallion Fund has achieved near legendary status). In addition, Short-Term Trading typically requires 24/7 operations, a significant investment in data processing infrastructure, and a large research team. Because of the higher costs and greater difficulty in scaling, the fees charged by these managers may be higher, since they cannot afford to «use up» their capacity by taking high amounts of low-fee assets.

It can also be challenging to find Short-Term Trading managers with a long track records, though there are several members of the STTI, including our own program, with track records spanning 15 years or more. Many managers in the space are untested in difficult environments like 1994 and 1998, and few or none have been around as long as the oldest hedge funds or CTAs.

Finally, as you might imagine from making it all the way to this point in this article, Short-Term Trading can be a challenging style to explain. Its «alpha» does not come from simple factors like «stocks rise over time,» «markets move in long-term trends,» or «people overweight the risk of default.» Investment committees and clients used to the standard issue «Here are my top five winning stocks (all +100% or more), here are my top five shorts (all down 50%), here is my well-educated and experienced team» approach to hedge fund presentation my have difficulty understanding the intricacies of a high-frequency approach.

With some unusually beneficial characteristics and excellent recent performance, Short-Term Trading is likely to receive a close look from investors seeking diversification and return opportunities during 2009 and beyond. Understanding the characteristics, benefits, challenges and risks of the strategy can aid in effective manager selection and enable investors to participate in the space with confidence and longevity.

Graph 1 I Distribution of Pair-wise Correlations Among Constituents



Source: AlphaMetrix Manager Database

Short-term Trading: Key benefits

1) Consistent low or negative correlation to equities and hedge fund portfolios provides better protection and diversification than most other strategies.
2) Managers are very different from each other and can even be negatively correlated to each other, allowing broad diversification if multiple managers chosen.
3) Many «flavors» available, such as short-equity biased, counter-trend, or currency-only.
4) Low correlation to CTA/Global Macro and other hedge fund styles.
5) Performs best when markets are volatile day-to-day, rather than slowly trending.
6) Consistently profitable during volatile or falling equity environments.
7) Programs are highly liquid, and trade liquid markets.
8) Relatively constant volatility and risk as market volatility and risk rises and falls.

Short-term Trading: Key risks

1) Diversity and complexity of strategies makes manager evaluation and side-by-side comparisons difficult.
2) Strategies evolve quickly over time.
3) No easily-explainable «drivers» of returns (i.e. managers won't say «I made money from a big uptrend in Crude Oil).
4) Strategies are closely-held trade secrets and can be challenging to explain (vs. «We analyze balance sheets to find «value» opportunities in equities»).
5) More difficult to scale than many CTA or Global Macro strategies, and strategies require large infrastructure/R&D investment so fees may be higher.
6) Many managers have short (<5 year) track records, though some have been around 15+ years.
7) Difficult to explain strategies to clients/investment committee if they are used to equity-oriented investments.

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Notes: Data sources: HFR, Newedge, AlphaMetrix

Funds of Funds: HFRI Composite Funds of Funds Index, monthly data since January, 2003 | Short-bias funds: HFRI EH: Short-Bias Index, monthly data since January, 2003 | Equity Market Neutral: HFRI EH: Equity Market Neutral Index, monthly data since January, 2003 | CTA: Newedge CTA Index, monthly data since January, 2003 | Global Macro: HFRI Macro (Total) Index, monthly data since January, 2003 | Relative Value: HFRI Relative Value (Total) Index, monthly data since January, 2003 | Short-Term Traders: Based on equal-weighted monthly returns of a basket of short-term traders since January, 2003