

In Search of Crisis Alpha

By Kathryn M. Kaminski, PhD

Most investment strategies are susceptible to devastating losses during equity market crisis. For almost any investor, the key to finding true diversification is an investment that can deliver performance during these turbulent periods. The recent losses of the credit crisis also have reinforced the importance of understanding why a particular investment strategy makes sense. Any new or current investor in managed futures knows that these strategies tend to perform well when equity markets take losses, making them excellent candidates for diversifying portfolios. By taking a closer look at what really happens during equity market crisis events (often called tail risk events), this article takes a new approach to explaining managed futures and why they can deliver “crisis alpha” opportunities for investors. Crisis alpha is profit gained by exploiting persistent trends that occur across markets during times of crisis. Advisors who understand why managed futures can deliver crisis alpha have an easier time explaining the benefits and characteristics of the strategy, and they can help investors use it more effectively.

What is Managed Futures?

Managed futures, commonly associated with commodity trading advisors (CTAs), is a subclass of alternative investment strategies that take positions and trade primarily in futures markets. Using futures contracts and sometimes options on futures contracts, they follow directional strategies in a wide range of asset classes including fixed income, currencies, equity indexes, soft commodities, energy, and metals. Although there are many types of managed futures strategies, the most common type is systematic trend following. Systematic

TABLE 1: MANAGED FUTURES INVEST IN FUTURES MARKETS VIA PROFESSIONAL MONEY MANAGERS (CTAS)

Directional	Systematically exploit directional moves in futures markets prices—upward or downward
Globally Diversified	Trade both long and short contracts in foreign exchange, interest rates, stock indexes, energy, metals, and soft commodities in regulated and interbank markets worldwide
Regulated	Typically authorized and regulated by financial supervisory authorities such as the Commodity Futures Trading Commission (CFTC) in the United States

trend-following strategies employ technical methods to identify and profit from price trends in financial markets. This approach can vary in the level of discretion in trading decisions, time horizons, and risk management approaches.

Futures Markets vs. Traditional Markets

Futures contracts are standardized, transferable exchange-traded contracts that allow an investor to take a directional (long or short) position in a range of underlying assets including currencies, fixed income, equity indexes, commodities, and energy (see table 1). The current futures price is the price today for delivery of the underlying asset at a pre-specified date in the future. Although delivery is possible in most futures contracts, it is quite rare (only about 1 percent of the contracts actually are delivered). To take a position in a futures contract, an investor must post collateral for the position in the form of margin maintained in a margin account with a clearinghouse broker. The clearinghouse works as the counterparty for all investors and marks contracts to market on a daily basis, settling up the losses and gains between pools of investors using the collateral that investors have in their margin accounts. Due to the daily marking-to-market, the margin required usually runs around 5–15 percent for both long and short positions, whereas collateral requirements

for positions in traditional markets are significantly higher and asymmetrically higher for short positions (for example, Regulation T in the United States requires 150-percent margin for short equity positions as opposed to roughly 50-percent margin for long equity positions).

Because futures contracts depend on the underlying asset's value at a future date, futures prices are highly correlated with their corresponding underlying assets. This correlation makes them excellent vehicles for taking directional positions in various asset classes and hedging. The clearinghouse mechanisms of futures markets, including the daily pooling and redistribution of funds, lower collateral constraints, and transparency and standardization of contracts, create a market that is extremely liquid and relatively void of both the counterparty risk and asymmetries between long and short positions common in traditional markets (see table 2).

When Should Futures-only Strategies Have a Competitive Edge?

A profitable investment strategy requires a profit opportunity that the strategy can exploit. Managed futures trade exclusively in the most liquid, efficient, and credit-protected markets, and their profitability depends on those characteristics to obtain a competitive edge. Managed futures will not profit from credit exposures or illi-

TABLE 2: CHARACTERISTICS OF FUTURES MARKETS

Transparent	Standardized contracts
Minimal counterparty/ credit risk	Daily marking-to-market, pooling of investment profits and losses for redistribution via clearinghouse brokers
Highly liquid	Ease of access and use, low requirements for collateral, lack of asymmetry between long and short positions, standardization of contracts, reduced counterparty risk

FIGURE 1: WHAT HAPPENS DURING EQUITY MARKET CRISIS?

quidity, which are commonly cited risks and opportunities for most hedge fund strategies. In fact, since managed futures strategies rely on the most-efficient type of trading vehicles, they must profit from time-persistent trends across markets which, given that markets are efficient, should not exist under ordinary circumstances. The next logical step is to examine non-ordinary circumstances where market efficiency may break down even in the most efficient of markets. Given that most investors are systematically long in the equity markets and may be susceptible to behavioral biases—especially when they lose money—equity-market crisis clearly is the scenario where predictable behavior and therefore persistent trends will be the most likely. By examin-

ing what happens during equity market crisis it is possible to show that managed futures, based purely on the design of the strategy, will be able to deliver crisis alpha.

What Happens during Equity Market Crisis?

Times of market crisis, for both behavioral and institutional reasons, represent times when market participants become synchronized in their actions creating trends in markets. It is only the select few most adaptable market players who are able to take advantage of these “crisis alpha” opportunities (Kaminski 2011a). This explanation is derived using a theoretical framework proposed by Lo (2004, 2005, and 2006) entitled the adaptive markets hypothesis (AMH), which explains how markets evolve and how market players succeed or fail based on the principles of evolutionary biology.¹

When equity markets go down, most investors are long biased to equity, including hedge funds, and they realize losses (figure 1). During periods of losses, investors are more likely to be governed by behavioral bias and emotion-based decision making. Coupled with the widespread use of institutionalized drawdown, leverage, and risk limits—which all are triggered by losses, increased volatility, and increased correlation—equity losses will force large groups of investors into action. When large groups of investors are forced to act, liquidity disappears, credit issues come to the forefront, fundamental valuation becomes less relevant, and persistent trends occur across all markets as investors fervently try to change their positions as they desperately seek liquidity.

Why Can Managed Futures Deliver Crisis Alpha?

Managed futures trade in a wide range of asset classes primarily in futures; they do not exhibit a long bias to equity, and they generally follow systematic trading strategies. Futures markets are extremely liquid and credit solvent, and they remain more liquid and credit solvent than other markets during times of crisis. Although managed futures are also subject to institutionalized drawdown-, risk-, and loss-limits, trading primarily in futures guarantees these trading strategies will be less affected by the reduced liquidity and credit solvency issues that accompany market crisis events. Given their lack of long bias to equities and systematic trading style, managed futures also will be less susceptible to the behavioral effects that accompany market crisis. In other words, managed futures strategies are adaptable, liquid, systematic, and void of long equity bias, making them less susceptible to the trap that almost all investors fall into during an equity crisis. Following the onset of a market crisis, a managed futures strategy will be one of the select few strategies that is able to adapt to take advantage of the persistent trends across the wide range of asset classes in which they trade, delivering crisis alpha to their investors. Note that managed futures don’t profit from timing the onset of an equity market crisis, they profit from the range of opportunities that follows the onset of a market crisis, which are addressed further below. The characteristics of managed futures and their implications during equity market crisis are summarized in table 3.

Decomposing Managed Futures Performance

The performance of managed futures strategies that deliver crisis alpha can be divided into three parts: crisis alpha, a risk premium, and the risk-free rate. Figure 2 highlights the largest crisis periods in equity markets from 1994 to 2010. Comparing the performance of a managed futures strategy with an

TABLE 3: CHARACTERISTICS OF MANAGED FUTURES AND IMPLICATIONS DURING EQUITY MARKET CRISIS

Characteristics of Managed Futures	Implications during Equity Market Crisis
Highly liquid, adaptable strategies based exclusively in futures with minimal credit exposure	Less susceptible to the illiquidity and credit traps that most investors experience during equity market crisis
Dominated by systematic trading strategies	Less susceptible to behavioral biases and emotion-based decision making triggered by experiencing losses
No long equity bias	
Active across a wide range of asset classes in futures	Poised to profit from trends across a wide range of asset classes

investment in Treasury bills highlights these three different performance components. In figure 3, the performance of the Barclay CTA Index is decomposed into crisis alpha, a risk premium, and the three-month Treasury bill return from 1994–2010. Over the entire sample period, equity crisis periods make up roughly 15 percent of the investment horizon, but they are responsible for roughly one-third of managed futures return. When the Newedge CTA Index is added for comparison during the past 10 years, equity crisis periods make up 40–50 percent of the return of managed futures for the Newedge CTA Index, Barclay CTA Indexes, Barclay Systematic Traders Index, and a naïve trend following replication strategy (see figure 4).²

A closer look at the performance of commonly used managed futures indexes shows that outside of these crisis periods their performance is roughly the same as the rate of return on short-term debt (see figure 4). Given that capital in margin accounts can earn interest over time, the broader managed futures indexes do not exhibit extra skill in delivering alpha above the risk-free rate outside crisis periods.

Crisis Alpha and Portfolio Management

An understanding of why managed futures deliver crisis alpha is important for explaining the benefits and characteristics of the strategy in simple terms.

Similar to Long Volatility

It's well-known that volatility tends to be high during equity market crisis. Thus, strategies such as managed futures that deliver crisis alpha will be highly correlated with a long position in volatility. In addition, managed futures strategies

FIGURE 2: EQUITY CRISIS PERIODS (1994–2010)



FIGURE 3: CRISIS ALPHA BARCLAY CTA INDEX (1994–2010)



also are dominated by systematic trend following. These strategies profit during larger moves in markets. Larger moves in markets cause volatility to be high. On the other hand, when volatility is

high and there is no market direction and, thus, no crisis alpha or trends, managed futures will not perform well whereas classic long volatility strategies might. Figure 5 demonstrates three



FIGURE 4: CRISIS ALPHA (2000–2010)

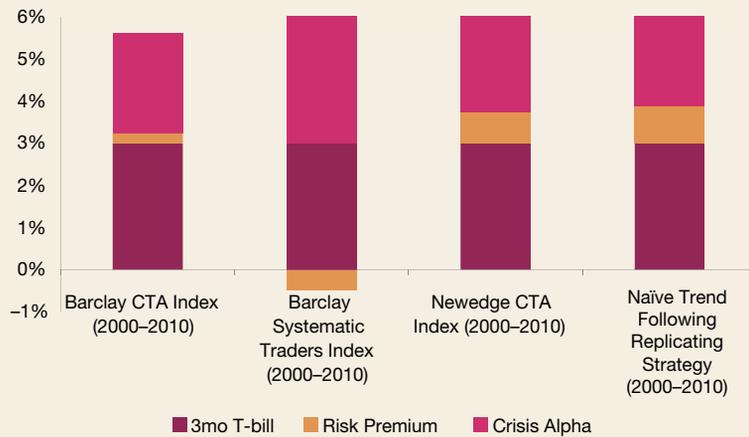


FIGURE 5: THREE SCENARIOS FOR HIGH OR RISING VOLATILITY

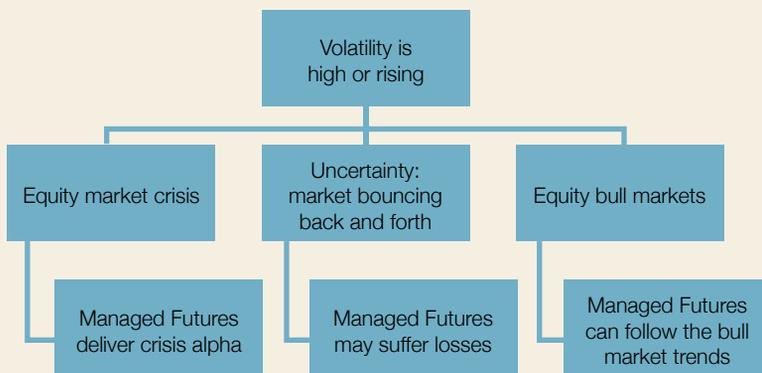
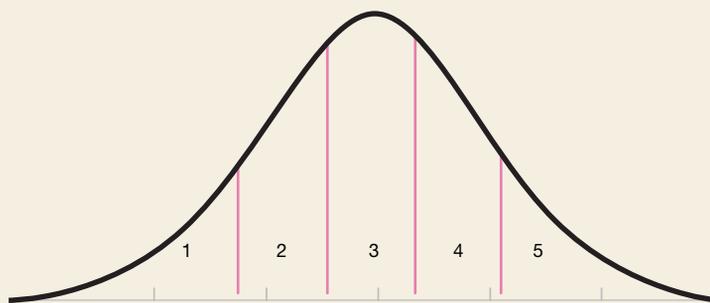


FIGURE 6: EQUITY RETURN QUINTILES



scenarios for high or rising volatility and what can be expected for managed futures strategies.

Conditional Correlation with Equity Markets Similar to an Equity Straddle

Because managed futures strategies tend to be trend following and deliver

crisis alpha, they will make substantial returns when equity markets are down significantly. When equity markets trend strongly upward, there will be additional upward trends in which managed futures strategies can participate. This explains why managed futures can look similar to an equity

straddle without the upfront costs required for investing in options. If the performance of managed futures is conditioned on the performance of equity return quintiles (figure 6), this conditional relationship gives payoffs that on average are similar, but not equal, to that of an equity straddle (see figure 7).

Lower Average Sharpe Ratios than Most Hedge Funds during Equity Bull Markets

During bull markets, many hedge fund strategies realize high Sharpe ratios. Research in hedge funds³ has pointed out that these strategies can contain hidden risks often related to liquidity and credit exposures. If managed futures deliver crisis alpha, their performance during bull markets may lag other hedge fund strategies given that they only trade in markets void of these hidden risks. This explains why using Sharpe ratios during bull markets will underestimate the longer-term value of managed futures in comparison with other alternative investment strategies.

Bulls vs. Bears: Reasonable Performance during Bull Markets

When equity markets are not in crisis, markets are competitive and efficient, especially futures markets. Alpha opportunities outside crisis periods should be less frequent and more difficult to find. Because most managed futures strategies earn interest on their margin accounts, the short-term Treasury rate is a good benchmark for their non-crisis performance. Certain skilled managers also may be able to take advantage of short-term dislocations in futures markets and trend followers may be able to ride the upward trends of strong bull markets. Almost all corporate hedging is done through futures markets, so managed futures strategies also may gain a small premium by meeting hedging demands. Other sources of profits for managed futures strategies include inflation premiums for holding long positions in commodities. A



FIGURE 7: CONDITIONAL PERFORMANCE WITH EQUITY

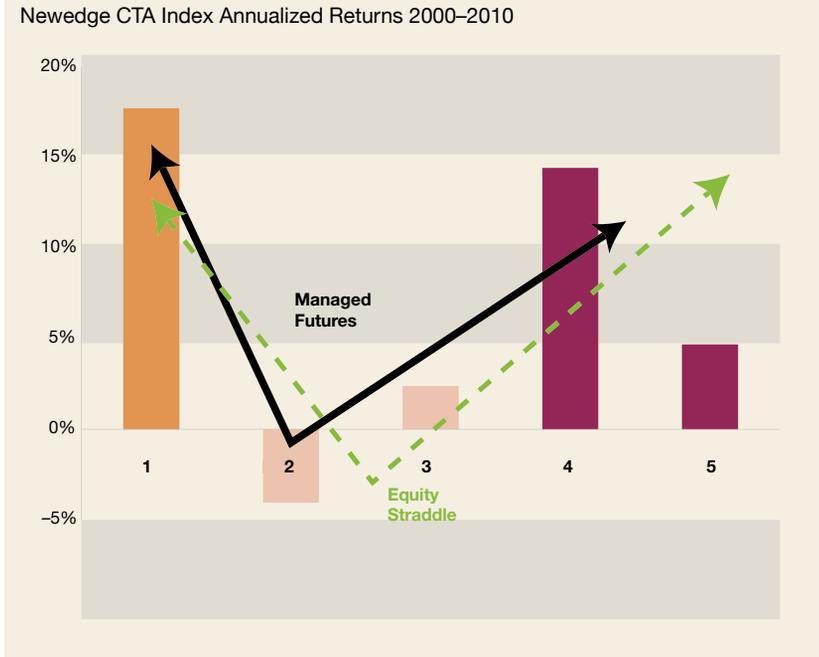
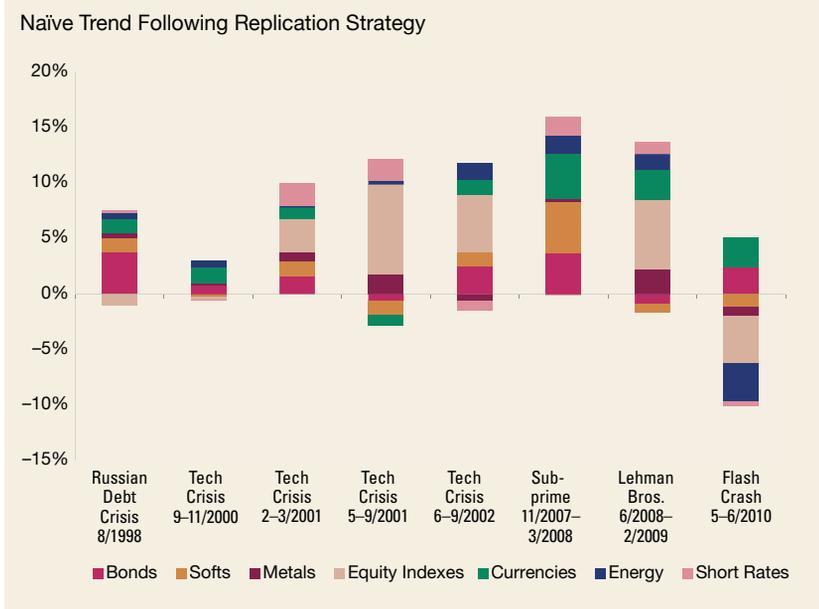


FIGURE 8: CRISIS PERFORMANCE BY SECTOR



closer analysis of CTA indexes and crisis alpha demonstrates that the indexes do not perform above the Treasury rate outside of crisis periods (see figure 4). This demonstrates how the average CTA strategy can deliver crisis alpha during equity crisis periods and performance

similar to the Treasury bill rate outside of these periods.

Manager Skill in Managed Futures Can Come from Two Sources

Regarding a manager’s trading skills, some managed futures strategies are

more adaptable during crisis, allowing them to provide more crisis alpha. Another source of manager skill is an ability to find opportunities outside of crisis events. As noted above, these opportunities are harder to find and strategies or managers that have a particular skill at finding these opportunities may be able to provide a risk premium above the short-term Treasury rate.

Misperceptions about Market Timing

Predicting the exact onset of a market crisis can be next to impossible. Market timing ability for such rare events is highly unlikely. Yet, after seeing the exemplary performance of managed futures during the credit crisis, a popular misconception has been that managed futures strategies predicted and profited from equity market crisis using short positions in equity indexes. During some past crisis periods, managed futures strategies did profit from short equity positions, but, in general, gains in equity indexes make up only a portion of the total crisis alpha. Managed futures strategies react to market crisis and position themselves across a spectrum of asset classes in liquid futures contracts to profit from trends that occur across all asset classes during these periods. By decomposing crisis performance by sector (figure 8), it becomes clear that managed futures don’t time equity crisis events, they respond positively to the widespread price dislocations and trading opportunities that follow them.⁴

A Tool for Hedging Tail Risk and Providing Portfolio Diversification

If managed futures deliver crisis alpha, they are an excellent vehicle for hedging and providing diversification during tail risk events, a time when almost all investments tend to suffer losses.

The Future of Managed Futures

Managed futures strategies trade exclusively in highly liquid and efficient



futures markets. The structure and style of these strategies make them more adaptable during situations of market crisis. The adaptability of these strategies allows them to profit from the persistent price trends that accompany these events, delivering crisis alpha to their investors. The increased globalization, integration, and synchronization of financial markets, coupled with an industry-wide long bias to equity markets and further push for institutionalized regulation, likely will keep financial markets susceptible to further equity market crisis events. If this is the case, although it is uncertain when an equity market crisis will strike again, an understanding of why managed futures provide crisis alpha can help investors to better understand why the strategy can continue to deliver crisis alpha in future market crisis scenarios. 

This article was written by Kathryn M. Kaminsky, PhD, in her previous role as senior investment analyst at RPM Risk & Portfolio Management AB in Stockholm, Sweden. She earned a PhD from the Massachusetts Institute of Technology. The article originally was published for the CME Group managed futures education section. For additional content from Kathryn M. Kaminski and CME Group, see <http://www.cmegroup.com/education/browse-materials/bios/commentary/kathryn-m-kaminski.html>. For more information about RPM Risk & Portfolio Management AB, please contact info@rpm.se.

Endnotes

- 1 For a more in-depth understanding of this theory, please consult Lo (2004, 2005, and 2006). Further analysis of managed futures in the context of the AMH is also presented in Kaminski and Lo (2011).
- 2 The naïve trend following replication strategy is based on 76 different futures contract prices from 1994–2010. It is not investable and has no track record; it simply allows for a closer look into strategy decomposition of profit opportunities for systematic trend followers over time (see “Crisis Alpha and Portfolio Management”).
- 3 Please see for example Fung and Hsieh (2001).
- 4 A naïve replicating strategy for systematic trend following can allow us to understand which trends could have been exploitable during crisis periods. From our firm’s experience, the sector performance of actual funds is similar to these replicating strategies with the exception that equity profits tend to be slightly lower than those posted by replicating strategies and profits in other sectors such as commodities and energy tend to be higher.

References

- Bhansali, V. 2008. Tail Risk Management. *Journal of Portfolio Management* 34, no. 4 (summer): 68–75.
- Chong, J., and J. Miffre. 2010. Conditional correlation and volatility in commodity futures and traditional asset markets. *Journal of Alternative Investments* 12, no. 3 (winter): 61–75.
- Fung, W., and D. Hsieh. 2001. The Risk in Hedge Fund Strategies: Theory and Evidence from Trend Followers. *The Review of Financial Studies* 14, no. 2 (summer): 313–341.
- Kaminski, K. 2011a. Diversify Risk with Crisis Alpha. *Futures Magazine* (February). <http://www.futuresmag.com/2011/02/01/diversify-risk-with-crisis-alpha>.
- . 2011b. Offensive or Defensive? Crisis Alpha vs. Tail Risk Insurance. Working paper under review, RPM Risk & Portfolio Management.
- Kaminski, K., and A. Lo. 2011. Managed Futures, Tail Events, and Adaptive Markets. Working Paper.
- Lo, A., 2004. The Adaptive Markets Hypothesis: Market Efficiency from an Evolutionary Perspective. *Journal of Portfolio Management* 30, no. 5: 15–29.
- . 2005. Reconciling Efficient Markets with Behavioral Finance: The Adaptive Markets Hypothesis. *Journal of Investment Consulting* 7, no. 2: 21–44.
- . 2006. Survival of the Richest. *Harvard Business Review* (March). <http://hbr.org/2006/03/survival-of-the-richest/ar/1>.