

**The Benefits of Managed Futures
2004 Update**

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The Benefits of Managed Futures

Introduction

The term *managed futures* represents an industry comprised of professional money managers known as *commodity trading advisors* (CTAs) who manage client assets on a discretionary basis, using global forward, futures and options markets as the primary investment medium. Basically, managed futures provide direct exposure to international financial and non-financial asset sectors while offering (through their ability to take both long and short investment positions) a means to gain exposure to risk and return patterns not easily accessible with investment in traditional long-only stock and bond portfolios. Investors have come to appreciate that the investment benefits in managed futures are well founded in financial theory and empirical evidence (Schneeweis and Pescatore, 1999). While it is impossible in a short synopsis to convey all the details of the benefits of managed futures, the managed futures are a means to the following:

- (1) The reduction of the volatility risk of stock, bond or stock and bond portfolios; and
- (2) The enhancement of stock and bond portfolio returns in economic environments in which traditional stock and bond investments offer limited return opportunities.

General Description of Managed Futures

Managed futures have been described as skill-based investment strategies. Skill-based strategies obtain returns from the unique skill or strategy of the trader. As a result, managed futures have also been described as *absolute return* strategies, as these returns do not depend on the long-term return in underlying traditional stock, bond or currency markets. Because managed futures are actively managed, trader skill is certainly important, as are the basic trading strategies behind most hedge fund investments. More recently, however, it has been shown that managed futures' returns have been driven by market factors such as trend following indices or market volatility. One may think of their returns as a combination of manager skill and an underlying return to the strategy itself. Industry practitioners and academics have created return series for managed futures strategies that can be used as benchmarks for hedge fund investors. Investors should note that each managed futures return series has its own approach to performance presentation, manager selection, and investment style classification. In this article we use the following CTA trading strategy benchmarks created by CISDM:¹

- **Dollar and Equal Weighted CTA Indices:** Dollar weighted and equal weighted manager returns for all reporting managers in the CISDM database.
- **Systematic:** Trade primarily in the context of a predetermined systematic trading model. Most systematic CTAs follow a trend-following program although some trade

¹ CTAs are often grouped by the market in which they trade. An index of CTA currency traders may include both systematic and discretionary currency traders. In addition, some index providers group CTAs by trading method. A CTA trend following index may include financial, currency, and diversified trend following CTAs.

countertrend. In addition, trend following CTAs may concentrate on short-term trends, mid-term, long-term or a combination thereof.

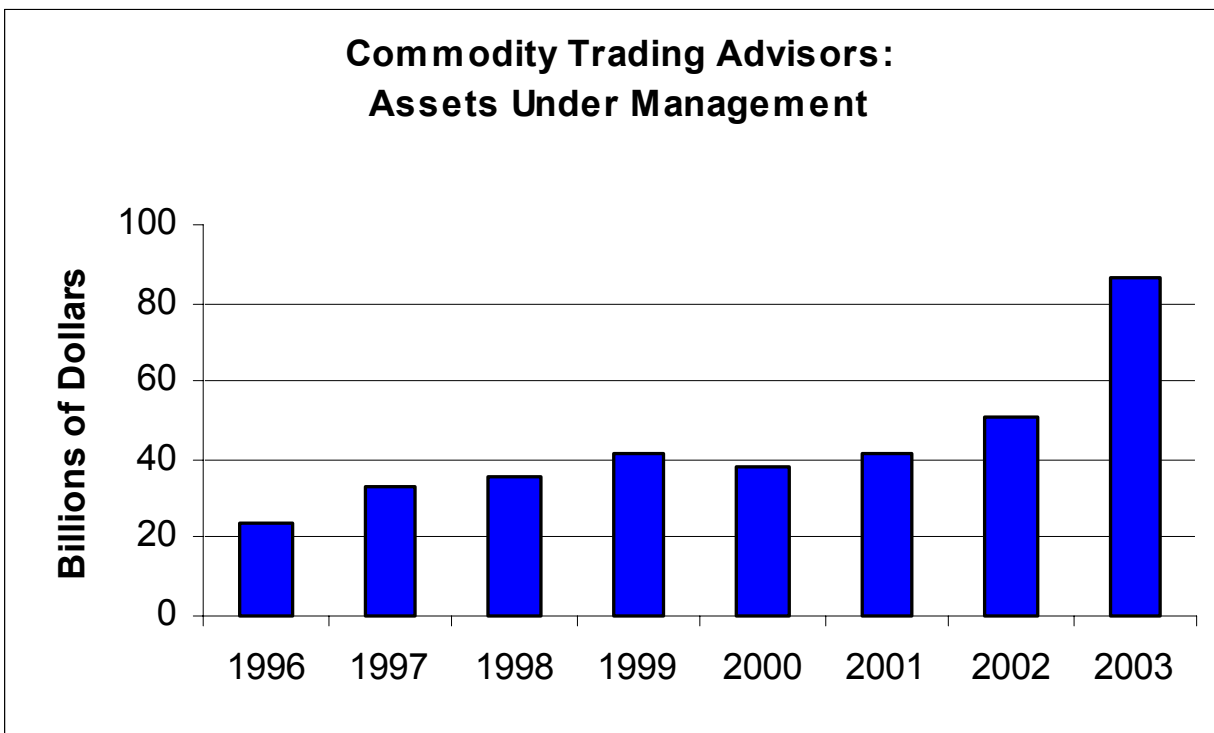
- **Financial:** Trade financial futures/options as well as currency futures/options and forward contracts.
- **Currency:** Trade currency futures/options and forward contracts.
- **Diversified:** Trade financial futures/options, currency futures/options and forward contracts as well as commodity futures/options.
- **Discretionary:** Trade financial, currency, and commodity futures/options based on a wide variety of trading models including those based on fundamental economic data and/or individual trader's beliefs. Traders often have the right to use systematic model based on personal criteria in making trading decisions.
- **Trend Following:** Trade financial, currency, and commodity futures/options based on a wide variety of trend-following models based primarily on historical price data.

The Growth and Benefit of Managed Futures

Futures and options have been used for centuries both as a risk management tool and return enhancement vehicle, yet managed futures, as an investment alternative has been available primarily since the 1970's. More recently, institutional investors such as corporate and public pension funds, endowments and trusts, and bank trust departments have been including managed futures as one segment of a well-diversified portfolio. As shown in Exhibit 1, the dollars under management for Commodity Trading Advisors in the Managed Futures industry has grown from approximately \$20 billion under management in 1996 to over \$85 billion in 2003.

This growth in investor demand for managed futures products indicates investor appreciation of the potential benefits of managed futures (e.g., reduced portfolio risk, potential for enhanced portfolio returns, ability to profit in different economic environments, and the ease of global diversification) as well as the special opportunities that futures/options traders have in lower transaction costs, lower market impact costs, use of leverage, and trading in liquid markets.

Exhibit 1



Source: Barclay Trading Group, Ltd.

It is important to note that many managed futures strategies trade primarily in futures markets, which are a net zero sum game. If CTAs were only trading against other CTAs then one may conclude that managed futures returns were based solely on manager skill. However, academic and practitioner research (Kritzman, 1993; Spurgin, 2003) have shown that some market players are willing to sell or hedge positions even if they expect spot positions to rise or fall in their favor (e.g., currency and interest rate futures may trend over time due to government policy to smooth price movements).² Managed futures traders offer liquidity to such hedgers and obtain a positive return/risk tradeoff in return. In addition, managed futures offer the market integrity and safety of trading in organized exchanges thus providing further assurances of investor safety.

Managed Futures: Risk and Return Performance

While CTAs have often been regarded as high-risk investments, the averaged annualized standard deviation of 39 individual CTAs that had complete data for the period 1990-2003 (27.50%) is less than the averaged annualized standard deviation of the individual firms in the Dow Jones 30 industrial average index (29.04%). More importantly, investment theory has shown that assets should be compared on a risk-adjusted basis (e.g., mean return/standard deviation) and that the potential benefit of adding an asset to an existing portfolio may be measured by the increase in an existing portfolio's Sharpe ratio when an asset is added to an

² Other examples of individuals willing to pay to reduce risk are individuals who buy insurance. In short, insurance firms obtain a positive return to risk investment from individuals wishing to hedge various risks.

existing portfolio investment. Results in Exhibit 2 show that, over the past fourteen years (1990-2003), investment in a portfolio of commodity trading advisors (e.g., CISDM CTA\$) provides stand-alone risk and return benefits generally similar to or better than existing U.S. and world stock and bond investments.³ The individual Sharpe ratios are as follows: CISDM CTA\$ (0.68), S&P 500 (0.43), Lehman Brothers Government/Credit bond index (0.80), Lehman Brothers World Government bond index (0.67) and MSCI world stock index (0.10).

More importantly, managed futures offers the investor an increased return to risk ratio when considered as an addition to widely diversified asset portfolios. The Sharpe ratio of the portfolios (Portfolio III and VI) which include at least a 10% investment in managed futures dominate those that invest solely in traditional stock and bond investments or in stock bond, and hedge funds (e.g., Portfolio III vs. II and Portfolio VI vs. V). The individual portfolio Sharpe ratios are as follows: Portfolio I (0.65), Portfolio II (0.85), Portfolio III (0.95), Portfolio IV (0.33), Portfolio V (0.56), Portfolio VI (0.67). The benefits of managed futures in diversified portfolios is further illustrated in Exhibit 3 in that, when the CISDM CTA\$ is added to a S&P 500, Lehman Brothers Bond index, as well as a S&P 500 and Lehman Brothers bond portfolio, the risk adjusted investment opportunities expand.

Exhibit 2

Performance January, 1990-December, 2003

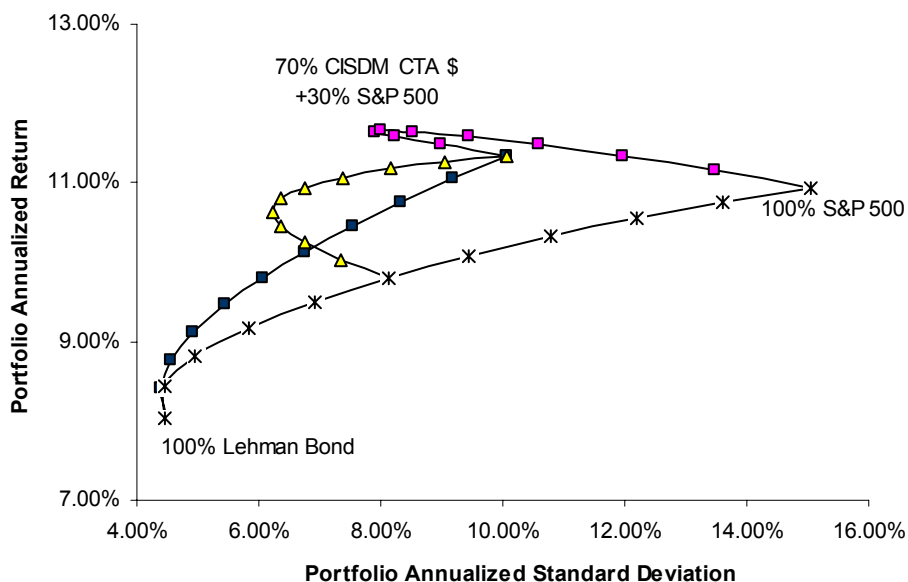
	CISDM CTA\$	Composite Hedge Fund Index	S&P 500	Lehman Gov./Corp Bond	MSCI	Lehman Global Bond
Annualized Return	11.34%	13.87%	10.94%	8.03%	6.04%	7.99%
Annualized Standard deviation	10.05%	5.82%	15.05%	4.45%	14.98%	5.22%
Sharpe Ratio	0.68	1.61	0.43	0.80	0.10	0.67
Minimum Monthly Return	-6.00%	-6.92%	-14.46%	-4.19%	-13.35%	-2.97%
Correlation With CISDM CTA\$		0.17	(0.12)	0.29	(0.13)	0.24
	Portfolio I S&P 500 & Lehman Bond	Portfolio II S&P 500, Lehman Bond and Composite HF	Portfolio III S&P 500, Lehman Bond Composite HF and CTA\$	Portfolio IV MSCI and Lehman Global Bond	Portfolio V MSCI, Lehman Global Bond and Composite HF	Portfolio VI MSCI, Lehman Global Bond Composite HF and CTA\$
Annualized Return	9.79%	10.63%	10.78%	7.31%	8.64%	8.98%
Annualized Standard deviation	8.14%	7.25%	6.60%	8.42%	7.39%	6.72%
Sharpe Ratio	0.65	0.85	0.95	0.33	0.56	0.67
Minimum Monthly Return	-6.25%	-6.39%	-5.21%	-5.63%	-5.89%	-4.76%
Correlation With CISDM CTA\$	(0.03)	(0.00)		(0.04)	(0.01)	

Portfolio I = 50% S&P 500 and 50% Lehman Brothers Gov./Corp. Bond
 Portfolio II = 40% S&P 500, 40% Lehman Brothers Gov./Corp. Bond and 20% Composite HF
 Portfolio III = 90% Portfolio II and 10% CISDM CTA \$ weighted Index
 Portfolio IV = 50% MSCI and 50% Lehman Brothers Global Bond
 Portfolio V = 40% MSCI, 40% Lehman Brothers Global Bond and 20% Composite HF
 Portfolio VI = 90% Portfolio V and 10% CISDM CTA \$ Weighted Index

³ CISDM Commodity Trading Advisor Universe and Managed Futures Pools and Fund Universe returns replace the Managed Accounts Reports (MAR) data used in previous studies. Zurich recently donated the MAR CTA and Hedge Fund databases to CISDM.

Exhibit 3

Risk and Return of Stock, Bond and CISDM CTA \$ weighed index: 1/1990-12/2003



Alternative Risk/Return Opportunities

Exhibit 4 displays the correlations of CTAs with other CTA based investment strategies. In general the correlation of CTA strategies with other CTA strategies is dependent on the degree to which the strategies are trend-based or discretionary. Since most CTAs utilize trend following strategies, the overall dollar-weighted and equal weighted indices are also highly correlated with other CTA strategies dominated by trend following indices. However, to fully diversify across managed futures strategies, investors may wish to consider both trend following and discretionary based CTA strategies.

Exhibit 5 shows the performance of the CISDM CTA dollar weighted, equally weighted and various CTA subindices as well as the correlation of CTA indices, such as the CISDM CTA dollar and CTA equally weighted indices and various CISDM CTA strategy subindices with traditional stock and bond indices. As shown in Exhibit 6 and 7, the correlation of CTAs with traditional equity markets differs when equity markets are performing well than when they are performing poorly. Also as shown in Exhibit 6 and 7, many managed futures programs are often negatively correlated with equity indices in months when equity returns are negative they are positively correlated with equities when equity returns are positive. For instance, as shown in Exhibit 6, for the period 1990 through 2003, the CISDM CTA dollar weighted index is negatively correlated (-0.30) with the S&P 500 when the S&P 500 posted its forty-eight worst months and yet is positively correlated (0.09) when the S&P 500 reported its best forty-eight months. In contrast, as shown in Exhibits 6 and 7, other alternative investment strategies such as

hedge funds (with a positive equity exposure--e.g., event driven or global established) have higher correlation with the equity market when the equity market is falling than when the equity market is rising.⁴

Exhibit 8 further illustrates the performance of CTAs over different S&P 500 market environments. In Exhibit 8, S&P 500 returns are ranked from low to high and divided into four thirty-nine month sub periods. As shown in Exhibit 8, managed futures offered the opportunity of obtaining positive returns in months in which the S&P 500 provided negative returns as well as in months in which the S&P 500 reported positive returns. In contrast, certain alternative investments such as equity based global established hedge funds had negative returns in just those months in which the S&P 500 performed poorly.

Exhibit 4

Correlation: CISDM CTA Universe Strategies (January 1990- December 2003)

	CISDM CTA\$	CISDM CTAEQ	CISDM Currency	CISDM Discretionary	CISDM Diversified	CISDM Financial	CISDM Trendfollowing
CTA\$	1.00						
CTAEQ	0.94	1.00					
Currency	0.66	0.62	1.00				
Discretionary	0.62	0.53	0.43	1.00			
Diversified	0.93	0.92	0.53	0.58	1.00		
Financial	0.93	0.88	0.59	0.46	0.84	1.00	
Trendfollowing	0.96	0.94	0.64	0.50	0.92	0.93	1.00

⁴ In the Exhibits in this study, CISDM CTA and Composite Hedge Fund universe returns are used. CTA\$ is the dollar weighted CTA universe. CTAEQ is the equal weighted CTA universe. The additional CTA indices are segmented by CTA reporting strategy (e.g., currency, financial, diversified) or style (Discretionary, Trend following). For hedge funds, Composite Event Driven is the equal-weighted average of EACM, HFR and CSFB-Tremont respective indices. The CISDM Fund of Funds is the median of reporting hedge fund of funds where capital allocated among a number of hedge funds. The Composite Equity Hedge is the equal-weighted average of EACM, HFR and CSFB-Tremont respective indices. The Composite Market Neutral is the equal-weighted average of EACM, HFR and CSFB-Tremont respective indices.

Exhibit 5

Performance: CISDM CTA Universe Strategies and Traditional Assets (January 1990- December 2003)

	Return	Standard Deviation	Sharpe Ratio	Minimum Monthly	Correlation	
					S&P 500	Lehman Bond
CISDM CTAS	11.37%	10.06%	0.68	-6.00%	-0.12	0.29
CISDM CTAEQ	9.74%	9.68%	0.54	-5.43%	-0.18	0.26
CISDM Currency	10.14%	12.09%	0.47	-8.17%	0.05	0.15
CISDM Discretionary	12.28%	6.60%	1.18	-4.57%	-0.06	0.21
CISDM Diversified	9.97%	11.51%	0.48	-7.53%	-0.16	0.27
CISDM Financial	12.08%	13.08%	0.58	-8.56%	-0.10	0.35
CISDM Trendfollowing	11.66%	16.38%	0.44	-10.38%	-0.18	0.28
S&P 500	10.94%	15.05%	0.43	-14.46%	1.00	0.14
Leh.Bros. Gov./Corp	8.03%	4.45%	0.80	-4.19%	0.14	1.00

Exhibit 6

Correlations in Best and Worst Forty-Eight S&P 500 Ranked Months (January 1990- December 2003)

	All S&P Months	Worst S&P 500 Forty-Eight Months	Best S&P 500 Forty-Eight Months
<i>Managed Futures</i>			
CISDM CTAS	-0.12	-0.30	0.09
CISDM CTAEQ	-0.18	-0.41	0.12
CISDM Currency	0.05	0.22	0.37
CISDM Discretionary	-0.06	-0.18	-0.05
CISDM Diversified	-0.16	-0.44	0.04
CISDM Financial	-0.10	-0.32	0.15
CISDM Trendfollowing	-0.18	-0.40	0.13
<i>Hedge funds</i>			
Composite Event Driven	0.58	0.69	-0.18
CISDM Fund of Funds	0.51	0.53	0.00
Composite Equity Hedge	0.64	0.54	0.02
Composite Market Neutral	0.07	0.02	0.14
<i>Traditional Assets</i>			
Lehman Govt/Corp.Bond	0.14	-0.26	0.04

Exhibit 7

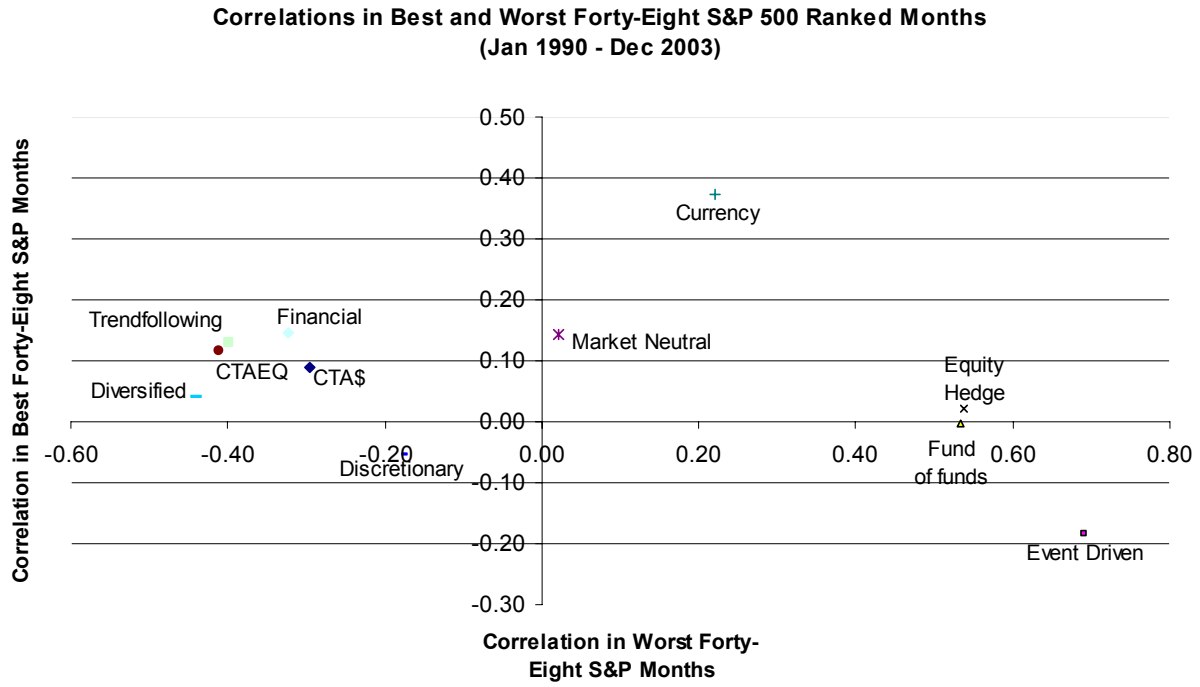
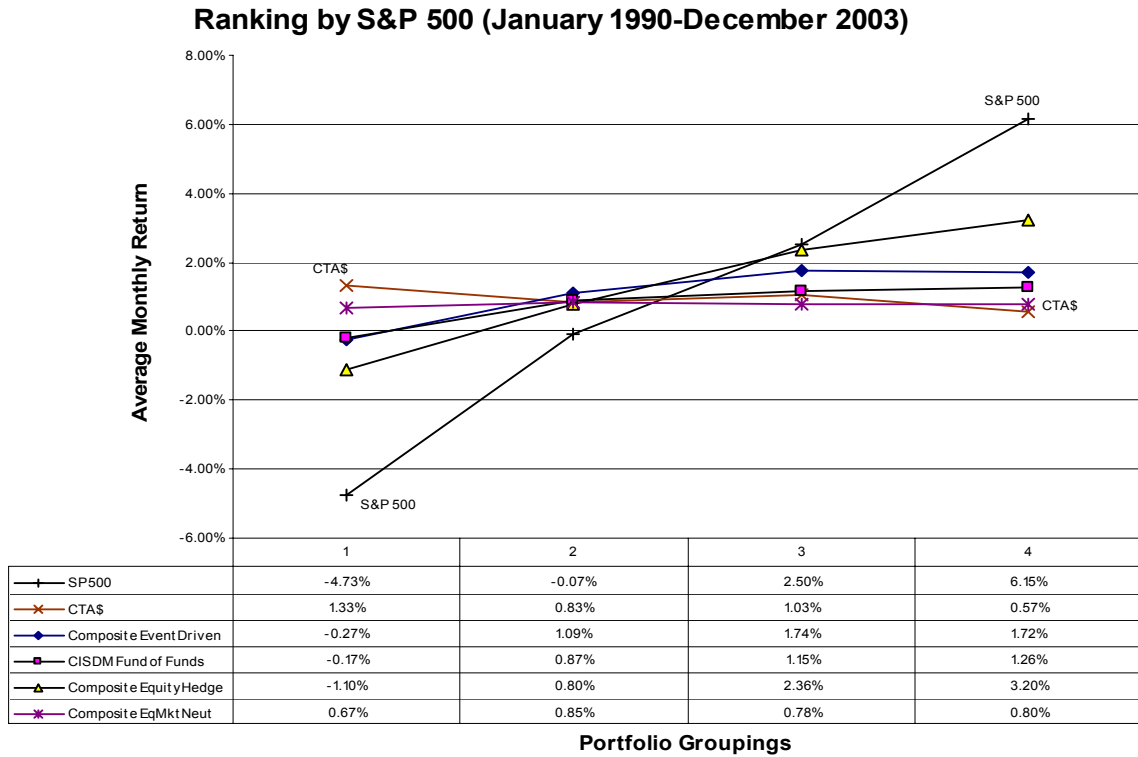


Exhibit 8



Recent Performance

Over the past five years CISDM CTA dollar weighted index as well as the S&P 500 and the Lehman Brothers Government Credit Bond index have underperformed relative to the overall 1990-2003 period. However, as shown in Exhibit 9, over the most recent five-year period (1999-2003), managed futures have continued to provide benefits as additions to existing stock and stock/bond portfolios. The Sharpe ratio of an equally weighted stock and bond portfolios was (0) and the Sharpe ratio of an equally weighted stock and bond portfolio with a 20% hedge fund component as (0.19), whereas adding a 10% CTA allocation to the stock, bond, and hedge fund portfolio resulted in a portfolio with a Sharpe ratio of (0.27).

Exhibit 9

Performance January, 1999-December, 2003

	CISDM CTAS	Composite Hedge Fund Index	S&P 500	Lehman Gov./Corp Bond	MSCI	Lehman Global Bond
Annualized Return	7.79%	10.26%	-0.57%	6.66%	-0.77%	5.43%
Annualized Standard deviation	8.24%	6.09%	17.15%	4.65%	16.27%	6.00%
Sharpe Ratio	0.53	1.13	(0.23)	0.70	(0.26)	0.34
Minimum Monthly Return	-5.12%	-2.94%	-10.87%	-4.19%	-11.01%	-2.97%
Correlation With CISDM CTAS		0.11	(0.30)	0.38	(0.23)	0.34

	Portfolio I S&P 500 & Lehman Bond	Portfolio II S&P 500, Lehman Bond and Composite HF	Portfolio III S&P 500, Lehman Bond Composite HF and CTAS	Portfolio IV MSCI and Lehman Global Bond	Portfolio V MSCI, Lehman Global Bond and Composite HF	Portfolio VI MSCI, Lehman Global Bond Composite HF and CTAS
Annualized Return	3.44%	4.81%	5.17%	2.68%	4.19%	4.61%
Annualized Standard deviation	8.33%	7.41%	6.58%	8.58%	7.66%	6.88%
Sharpe Ratio	0.00	0.19	0.27	(0.08)	0.10	0.18
Minimum Monthly Return	-4.36%	-3.62%	-3.07%	-4.95%	-4.09%	-3.50%
Correlation With CISDM CTAS	(0.21)	(0.17)		(0.10)	(0.07)	

Portfolio I = 50% S&P 500 and 50% Lehman Brothers Gov./Corp. Bond
Portfolio II = 40% S&P 500, 40% Lehman Brothers Gov./Corp. Bond and 20% Composite HF
Portfolio III = 90% Portfolio II and 10% CISDM CTA \$ weighted Index
Portfolio IV = 50% MSCI and 50% Lehman Brothers Global Bond
Portfolio V = 40% MSCI, 40% Lehman Brothers Global Bond and 20% Composite HF
Portfolio VI = 90% Portfolio V and 10% CISDM CTA \$ Weighted Index

Differential Sources of Returns to Managed Futures and Recent Research

The real benefit to managed futures is that they provide sources of returns that are uniquely different from traditional stock or bonds or even hedge funds. For instance, managed futures have been marketed as offering unique risk and return properties that are not easily available through traditional investment securities or hedge fund investment products. The return opportunities to managed futures stem from the expanded universe of securities available to trade and from the broader range of trading strategies.

One reason for the supposedly low correlation and potential diversification benefit is that managed futures often describe themselves as employing skill-based investment strategies that do not explicitly attempt to track a particular index. Since their goal is to maximize long-term returns independently of a prescribed traditional stock and bond index, they emphasize *absolute returns* and not returns relative to a predetermined index. It is important to realize, however, that while managed futures do not emphasize benchmark tracking this *does not mean* that their entire return is based solely on manager skill or is independent of the movement of underlying stock, bond, or currency markets. Recent research (Jensen, Johnson and Mercer, 2003) suggests that using MLM (Mount Lucas Management) Index as a benchmark for managed futures for the

period of 1961-2000 and converting only 10% of already diversified portfolios for four different level investors, ranging from conservative to aggressive risk levels, results in a significant increase in the Sharpe ratios for each of the four portfolios. Authors' findings suggest that, for the period 1961 through 2000, this benefit can be attributed primarily to a reduction in risk, rather than an increase in return. The risk is consistently reduced however the returns increase only approximately half of the years in the sample period. The authors also examine the effects that Fed monetary policy has on the diversification benefits of managed futures. They conclude that managed futures create diversification benefits when the Fed has signaled a restrictive policy stance when inflation is a major concern (increasing commodity prices) and managed futures do not provide benefits during an expansive policy periods when inflation is of no major concern (stable commodity prices). One limitation of the MLM index is that although it includes 25 financial and commodity futures contracts it leaves out the futures contracts on equities.

Managed futures often track a particular investment strategy or investment opportunity. When appropriately grouped, these managed futures strategies appear to have been driven by the common market factors (e.g., price trends, asset markets traded) that drive various managed futures strategies. In Exhibit 10, various hedge fund strategies as well as stock and bond markets are related to factors that have been shown in prior studies to drive their returns. For instance, results show that the Russell 3000 as well as equity bias hedge fund strategies (e.g., global established) has high correlation with the same factors as long- equity (e.g., S&P 500).

Exhibit 10

Factor Correlations (January 1990 - December 2003)

	S&P 500	Leh. Bros. Bond	Lehman High Yield	Volatility Proxy Equity
Managed Futures				
CISDM CTAS\$	-0.12	0.29	-0.11	0.09
CISDM CTAEQ	-0.18	0.26	-0.16	0.15
CISDM Currency	0.05	0.15	0.06	-0.09
CISDM Discretionary	-0.06	0.21	-0.02	-0.01
CISDM Diversified	-0.16	0.27	-0.14	0.16
CISDM Financial	-0.10	0.35	-0.11	0.12
CISDMTrendfollowing	-0.18	0.28	-0.15	0.16
Hedge funds				
Composite Event Driven	0.58	0.07	0.70	-0.14
CISDM Fund of Funds	0.51	0.17	0.43	-0.06
Composite Equity Hedge	0.64	0.10	0.43	-0.03
Composite Market Neutral	0.07	0.22	-0.03	0.14
Traditional Assets				
S&P 500	1.00	0.14	0.50	-0.01
Leh. Bros. Bond	0.14	1.00	0.23	0.17
Russell 3000	0.99	0.12	0.52	-0.03

In contrast, managed futures are not correlated with the stock and bond markets or changes in equity market volatility but track indices that reflect trend following return patterns.⁵ As shown

⁵ As shown in Exhibit 10, some CTA strategies are positively correlated with the volatility based return measures. This is consistent with academic research (Fung and Hsieh, 2000) that CTA returns are similar to the returns of a look back option on the S&P 500

in Exhibit 11, certain managed futures strategies (e.g. CTA Currency, CTA Systematic and CTA Trend following) show moderate correlation with their associated passive trend following indices. Since managed futures do not load on the same factors as stocks, bonds or hedge funds, they offer low correlation and diversification opportunities to traditional stock, bond or hedge fund portfolios. In addition, managed futures programs that are not trend following in structure (e.g., discretionary) and thus are not correlated with these trend following indices, offer additional diversification within the managed futures area.

Exhibit 11

Factor Correlations: CISDM Managed Futures (1996-2003)

	S&P 500	Leh. Bros. Bond	Lehman High Yield	Volatility Proxy Equity	Trendfollowing Interest Rate	Trendfollowing Currency	Trendfollowing Stock	Trendfollowing Physicals
CISDM CTAS	-0.13	0.46	-0.09	0.08	0.53	0.57	0.32	0.20
CISDM CTAEQ	-0.17	0.43	-0.15	0.15	0.56	0.65	0.36	0.23
CISDM Currency	0.17	0.15	0.23	-0.15	-0.12	0.62	-0.14	-0.06
CISDM Discretionary	0.06	0.31	0.15	-0.03	0.31	0.32	0.26	0.09
CISDM Diversified	-0.18	0.43	-0.13	0.15	0.54	0.49	0.41	0.30
CISDM Systematic	-0.10	0.43	-0.06	0.03	0.49	0.56	0.28	0.22
CISDM Financial	-0.16	0.47	-0.16	0.14	0.59	0.51	0.31	0.11
CISDM Trendfollowing	-0.25	0.43	-0.23	0.16	0.56	0.57	0.39	0.20
S&P 500	1.00	-0.09	0.50	-0.05	-0.19	-0.14	-0.28	-0.17
Leh. Bros. Bond	-0.09	1.00	0.12	0.15	0.39	0.20	0.21	-0.01
Russell 3000	0.99	-0.11	0.52	-0.07	-0.20	-0.14	-0.28	-0.17

* CTA returns are CISDM Universe Medians

** Trendfollowing Interest Rate, Currency, and Stock are Passive Systematic CTA Indices (See www.CISDM.org)

Conclusions

The results of this study provide important information to the investment community about the benefits of managed futures.

First, managed futures trade in markets offering investors the same market integrity and safety as stock and bond markets. Managed futures investment, as for stocks and bonds, provide investors with the assurance that their investment managers work with a high degree of government oversight and self regulation and trade primarily in closely regulated markets.

Second, managed futures are not more risky than traditional equity investment. Investment in a single commodity-trading advisor is shown to have risks and returns similar to investment in a single equity investment. Moreover, portfolios of commodity trading advisors are also shown to have risks and returns similar to traditional equity portfolio investments.

Third, most traditional money managers (and many hedge fund managers) are restricted by regulation or convention to holding primarily long investment positions and from using actively traded futures and option contracts (which offer lower transaction costs and lower market impact costs than direct stock or bond investment). Thus, in contrast to most stock and bond investment vehicles as well as many hedge fund strategies, managed futures offer unique return opportunities which exist through trading a wide variety of global stock and bond futures and options market and through holding either long or short investment positions in different

economic environments (e.g., arbitrage opportunities, rising and falling stock and bond markets, changing market volatility). As a result of these differing investment styles and investment opportunities, managed futures have the potential for a positive return even though futures and options markets in total provide a zero net gain among all market participants. Thus managed futures are shown on average to have a low return correlation with traditional stock and bond markets as well as many hedge fund strategies and to offer investors the potential for reduced portfolio risk and enhanced investment return. As important, for properly constructed portfolios, managed futures are also shown to offer unique downside risk control along with upside return potential.

Simply put, the logical extension of using investment managers with specialized knowledge of traditional markets to obtain maximum return/risk tradeoffs is to add specialized managers who can obtain the unique returns in market conditions and types of securities not generally available to traditional asset managers; that is, managed futures.

Selected References

Fung, W. and D. A. Hsieh, "Empirical Characteristics of Dynamic Trading Strategies: The Case of Hedge Funds," *Review of Financial Studies*, 10 (1997) 275-302.

Jensen, R. Gerald, Johnson, R. Robert and Mercer, M. Jeffrey, "Time Variation in the Benefits of Managed Futures," *The Journal of Alternative Investments* (spring, 2003) 41-50.

Kritzman, Mark, "The Optimal Currency Hedging Policy with Biased Forward Rates," *The Journal of Portfolio Management* (summer 1993) 94-100.

The Handbook of Alternative Investment Strategies: An Investor's Guide. Ed. Thomas Schneeweis and Joe Pescatore. New York: Institutional Investor (1999).

Schneeweis, Thomas, "Dealing With Myths of Managed Futures," *The Journal of Alternative Investments* (summer, 1998) 9-18.

Spurgin, Richard, "Sources of Return in Managed Futures," *Working Paper*, CISDM (2003).