MANAGED FUTURES

PORTFOLIO DIVERSIFICATION OPPORTUNITIES

Chicago Board of Trade

" Portfolios . . . including judicious investments . . . in leveraged managed futures accounts show substantially less risk at every possible level of expected return than portfolios of stocks (or stocks and bonds) alone."

Dr. John Lintner
Harvard University

What Are Managed Futures?

Investment management professionals have been using managed futures for more than 30 years. More recently, institutional investors such as corporate and public pension funds, endowments and trusts, and banks have made managed futures part of a well-diversified portfolio. In 2002, it was estimated that over $45 billion was under management by trading advisors.

The growing use of managed futures by these investors may be due to increased institutional use of the futures markets. Portfolio managers have become more familiar with futures contracts. Additionally, investors want greater diversity in their portfolios. They seek to increase portfolio exposure to international investments and nonfinancial sectors, an objective that is easily accomplished through the use of global futures markets.

The term **managed futures** describes an industry made up of professional money managers known as *commodity trading advisors* (CTAs). These trading advisors manage client assets on a discretionary basis using global futures markets as an investment medium. Trading advisors take positions based on expected profit potential.

For the purposes of this booklet, managed futures do not include futures accounts where futures are used in risk-management programs or hedge funds. Those funds may have as their purpose to dynamically adjust the duration of a bond portfolio or to hedge the currency exposure of a foreign equity portfolio.

Table 1: Correlation of Selected Asset Classes 1993-2002*

	U.S. Stocks	Bonds	Managed Futures
U.S. Stocks[1]	1.00		
Bonds[2]	-0.04	1.00	
Managed Futures[3]	-0.19	0.33	1.00

Source: Barclay Trading Group, Ltd.
*Based on monthly data from 1993-2002 on an annualized basis
[1] U.S. Stocks: S&P 500 Total Return Index
[2] Bonds: Lehman Brothers Long-Term U.S. Treasury Index
[3] Managed Futures: Barclay CTA Index

Four Benefits of Managed Futures

Managed futures, by their very nature, are a diversified investment opportunity. Trading advisors have the ability to trade in over 150 different markets worldwide. Many funds further diversify by using several trading advisors with different trading approaches.

The benefits of managed futures within a well-balanced portfolio include:
- opportunity for reduced portfolio volatility risk
- potential for enhanced portfolio returns
- ability to profit in any economic environment
- opportunity to participate easily in global markets

1. Reduced Portfolio Volatility Risk

The primary benefit of adding a managed futures component to a diversified investment portfolio is that it may decrease portfolio volatility risk. This risk-reduction contribution to the portfolio is possible because of the low to slightly negative correlation of managed futures with equities and bonds. One of the key tenets of Modern Portfolio Theory, as developed by the Nobel Prize economist Dr. Harry M. Markowitz, is that more efficient investment portfolios can be created by diversifying among asset categories with low to negative correlations.

Table 1 compares the correlations between managed futures, bonds, and domestic stocks from January 1993 through December 2002. As you can see, managed futures are essentially uncorrelated to the other asset classes.

2. Potential for Enhanced Portfolio Returns

While managed futures can decrease portfolio risk, they can also simultaneously enhance overall portfolio performance. For example, chart 1 shows that adding managed futures to a traditional portfolio *improves overall investment quality.* This is substantiated by an extensive bank of academic research, beginning with the landmark study of Dr. John Lintner of Harvard University, in which he wrote that "the combined portfolios of stocks (or stocks and bonds) after including judicious investments . . . in leveraged managed futures accounts show substantially less risk at every

possible level of expected return than portfolios of stocks (or stocks and bonds) alone."[1]

Table 2 shows that when viewed as an independent investment, managed futures have compared favorably with U.S. stocks and bonds, as well as international stocks, over the past decade.

In addition, the potential for higher returns using managed futures compares well with other asset classes in terms of risk. One way to compare risk is to measure the magnitude of the worst cumulative loss in value of an investment from any peak in performance to the subsequent low. This worst-case, peak-to-valley scenario is called a *drawdown* in the futures industry. Chart 2 shows that managed futures outperformed U.S. and international stocks during the worst peak-to-valley drawdowns of the S&P 500, the NASDAQ, and the MSCI Europe, Australia, and Far East (EAFE) Index.

[1]Lintner, John, "The Potential Role of Managed Commodity Financial Futures Accounts (and/or Funds) in Portfolios of Stocks and Bonds," *Annual Conference of Financial Analysts Federation,* May 1983.

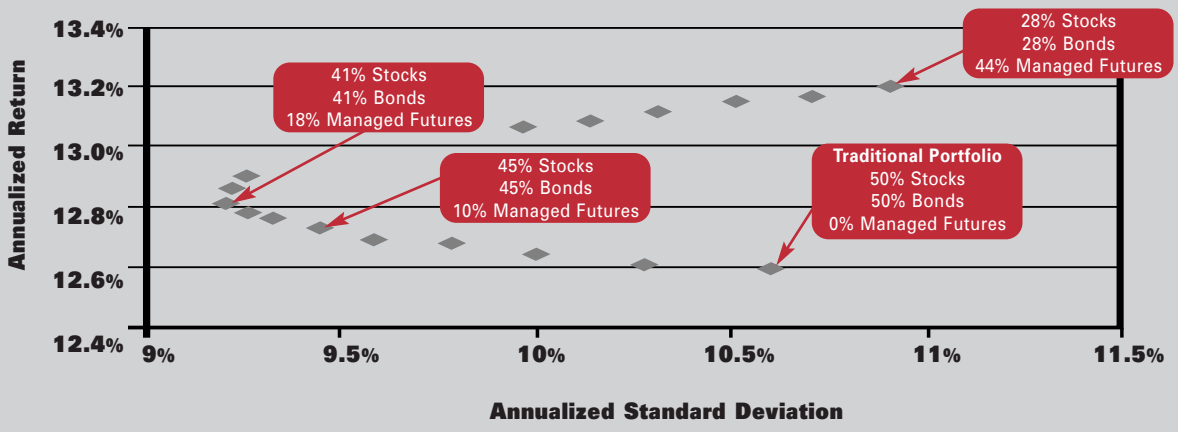
3. Ability to Profit in Any Economic Environment

Managed futures trading advisors can take advantage of price trends. They can buy futures positions in anticipation of a rising market or sell futures positions if they anticipate a falling market. For example, during periods of hyperinflation, hard commodities such as gold, silver, oil, grains, and livestock tend to do well, as do the major world currencies. During deflationary times, futures provide an opportunity to profit by selling into a declining market with the expectation of buying, or closing out the position, at a lower price. Trading advisors can even use strategies employing options on futures contracts that allow for profit potential in flat or neutral markets.

4. Ease of Global Diversification

The establishment of global futures exchanges and the accompanying increase in actively traded contract offerings (see table 3) have allowed trading advisors to diversify their portfolios by geography as well as by product. For example, managed futures accounts can participate in at least 150 different markets worldwide, including stock indexes, financial instruments, agricultural and tropical products, precious and nonferrous metals, currencies, and energy products. Trading advisors thus have ample opportunity for profit potential and risk reduction among a broad array of noncorrelated markets.

Chart 1: Potential Impact of Managed Futures on the Traditional Portfolio Jan.1980 - May 2003



Source:
Barclay Trading Group, Ltd., Managed Futures: Barclay CTA Index; Bonds: Lehman Brothers Long-Term Treasury Index; Stocks: S&P 500 Total Return Index

Table 2: Performance of Selected Asset Classes 1993-2002*

Year	U.S. Stocks[1]	Bonds[2]	International Stocks[3]	Managed Futures[4]
1993	10.1	16.4	24.6	10.4
1994	1.3	–6.9	6.2	–0.6
1995	37.6	30.7	9.4	13.6
1996	22.9	–0.4	4.4	9.1
1997	33.4	14.9	0.2	10.9
1998	28.6	13.5	18.2	7.0
1999	21.0	–8.7	25.3	–1.2
2000	–9.1	20.1	–15.2	7.9
2001	–11.9	4.6	–22.6	0.8
2002	–22.1	17.2	–17.5	12.4
Compound Return	9.3%	9.5%	2.0%	6.9%

Source: Barclay Trading Group, Ltd.

*Based on monthly data from 1993-2002 on an annualized basis (as percentage of annual return)

[1] U.S. Stocks: S&P 500 Total Return Index

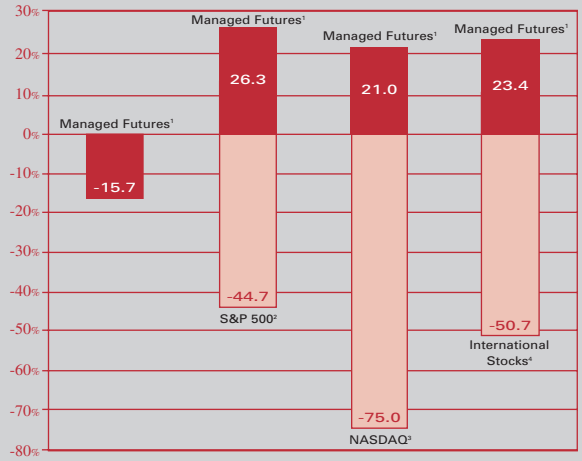
[2] Bonds: Lehman Brothers Long-Term U.S. Treasury Index

[3] International Stocks: Morgan Stanley Capital International Europe, Australia, and Far East (EAFE) Index

[4] Managed Futures: Barclay CTA Index

Chart 2: Worst Case Declines

And how managed futures performed over the same time period.



Source: Barclay Trading Group, Ltd.

[1] Managed Futures: Barclay CTA Index. Greatest drawdown 6-89 through 10-89.

[2] S&P 500 Total Return Index. Greatest drawdown 8-00 through 9-02.

[3] NASDAQ Composite Index. Greatest drawdown 2-00 through 9-02.

[4] International Stocks & Morgan Stanley Capital International Europe, Australia and Far East (EAFE) Index. Greatest drawdown 12-99 through 3-03.

Table 3: Most Actively-Traded Futures Contracts — Global Futures with Trading Volume Over 10 Million in 2002

Chicago Board of Trade (CBOT)	US Treasury Bonds US 10-year Treasury Notes US 5-year Treasury Notes Corn Soybeans
Eurex (formerly DTB and SOFFEX)	DAX DJ Euro Stoxx 50 Euro-BUND Euro-BOBL Euro-SCHATZ
Chicago Mercantile Exchange (CME)	3-month Eurodollar S&P 500 Index E Mini S&P 500 E Mini NASDAQ 100
London International Financial Futures and Options Exchange (LIFFE)	3-month Euribor 3-month Sterling FTSE 100 Index
Bolsa de Mercadorias & Futuros (BM&F)	Interbank Deposit FRA on ID x US Dollar Spread US Dollar
New York Mercantile Exchange (NYMEX)	Crude Oil Natural Gas Heating Oil Unleaded Gasoline
London Metal Exchange (LME)	High Grade Primary Aluminum Copper – Grade A
Tokyo Commodity Exchange (TOCOM)	Platinum Gold Kerosene Gasoline
Commodity Exchange, Japan (CHUBU)	Gasoline Kerosene
ParisBourse (formerly MATIF and MONEP)	CAC 40 10 Euro
International Petroleum Exchange (IPE)	Brent Crude Oil
Korea Stock Exchange (KSE)	KOSPI 200
OM Stockholm (OM)	OMX Index
Singapore Exchange (SGX, formerly SIMEX)	Eurodollar
Sydney Futures Exchange (SFE)	3-year Treasury Bonds
Korea Futures Exchange (KOFEX)	3-year Treasury Bonds

The Efficiencies of the Futures Markets . . .

Domestic and international corporations, banks, insurance companies, mutual fund managers, and trading firms use the futures markets to manage their continuous exposure to price changes. Futures markets make it possible for these hedgers to transfer that risk exposure to other market participants. Speculators assume risk in anticipation of making a profit; in doing so, they add liquidity to the market.

In a market without these risk-takers, hedgers would find it difficult to agree on a price, because sellers or short hedgers want the highest possible price while buyers or long hedgers want the lowest possible price. When speculators enter the marketplace, the number of ready buyers and sellers increases, and hedgers are no longer limited by the hedging needs of others.

In addition to providing liquidity, speculators help to ensure the stability of the market. For example, by selling futures when prices are high, speculators decrease demand and help to lower prices. By purchasing futures when prices are low, they add to demand and help to raise prices. The volatile price swings that might otherwise occur are thus tempered by active trading.

. . . Benefit Those Who Use Managed Futures

Managed futures trading advisors can benefit from the structural efficiencies of the futures markets.

Liquid markets facilitate entering and exiting market positions. For example, the average daily trading volume in the 10-year U.S. Treasury note futures contract is currently about 600,000 as of mid 2003. With a notional value of $100,000 per contract, this volume represents an average daily transfer of about $60 billion. This depth of liquidity usually allows traders to enter or exit the Treasury note futures market at the minimum price change of one tick.

Traders in futures may benefit from **transaction costs lower than those for comparable cash market transactions.** For example, the transaction fee charged for one stock index contract is substantially less than the transaction fee for trading an equal dollar amount of stock. Typically, this cost is 1/10 to 1/20 of the comparable cash market execution cost.

Lower market impact costs also benefit the futures trader. Large-block equity orders sent to the stock exchange often create a supply-demand imbalance that increases the bid-ask differential and the cost of the trade. The effect of a comparable dollar order executed in the futures market is usually less significant. This is understandable when one considers the greater liquidity of stock index futures, where the daily dollar volume is concentrated in a single standardized contract representing a basket of stocks. In contrast, the daily dollar volume at a stock exchange is distributed over many stocks.

The disciplined **use of leverage** enables traders to control large dollar amounts in the futures markets with a comparatively small amount of capital. To ensure performance of the terms of the futures contract, both the buyer and seller are required to deposit a performance bond margin in an account at their brokerage firms. (Note that in the futures industry, the term *margin* represents a security deposit, whereas in the stock market, margin represents a down payment.) The amount of daily maintenance margin required by brokerage firms fluctuates with the daily value of the futures position.

Evaluating Risk from an Investor's Perspective

Investors should understand that there are risks associated with trading futures and options on futures. The Commodity Futures Trading Commission (CFTC) requires that prospective customers be provided with risk-disclosure statements which should be carefully reviewed. Past performance is not necessarily an indicator of future results.

Potential investors will want to become familiar with industry definitions for evaluating the risk-return element of managed futures performance. The following equations, with some variations, are often used.

Measure of Volatility

Standard Deviation: The dispersion (distance) of observations (performance data) from the mean (or average) observation. This measure is often expressed as a percentage on an annualized basis.

Measure of Capital Loss

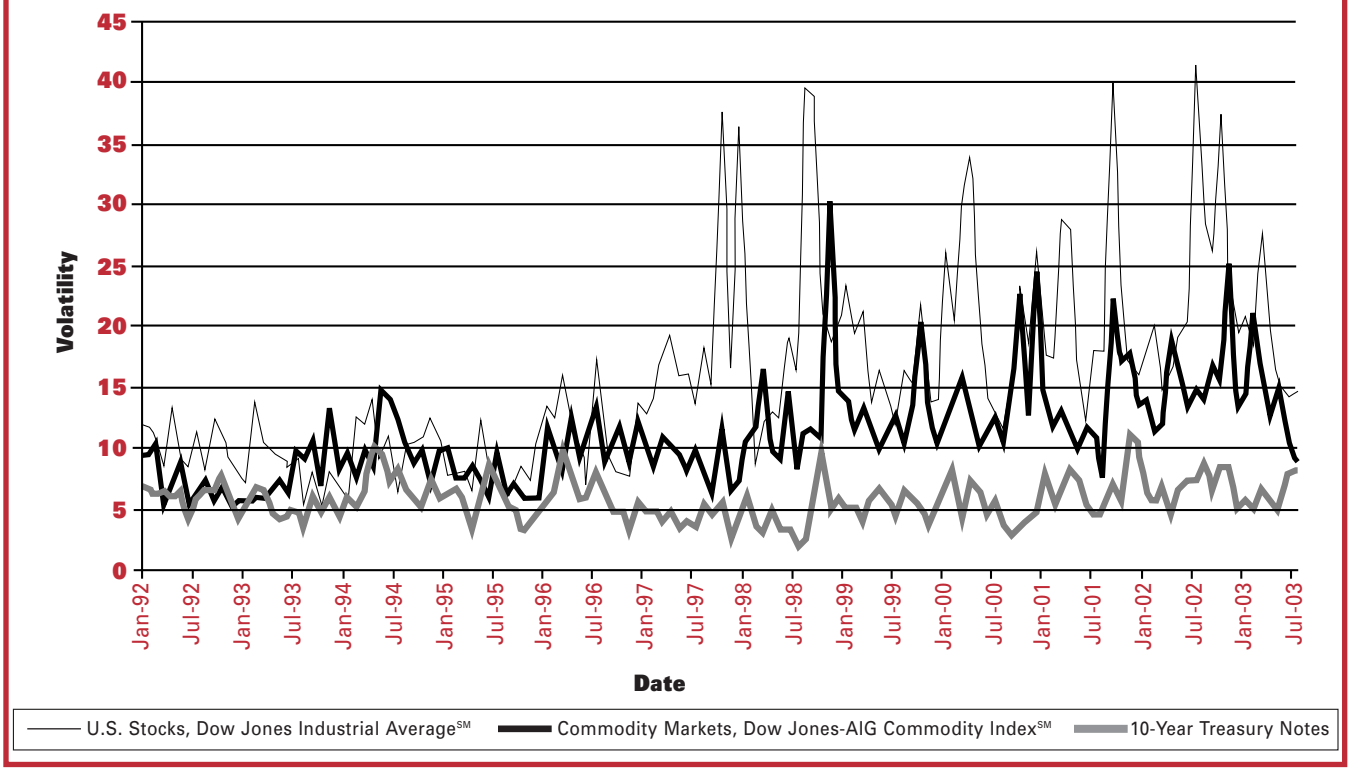
Largest Cumulative Decline or Maximum Drawdown: The largest cumulative percentage (peak-to-valley) decline in capital of a trading account or portfolio. This measure of risk identifies the worst-case scenario for a managed futures investment within a given time period.

Measure of Risk-Adjusted Return

Sharpe Ratio: A ratio that represents a rate of return adjusted for risk, calculated as follows:

$$\frac{\text{Annual rate of return - Risk-free rate of return}}{\text{Annualized standard deviation}}$$

Chart 3: Volatility of U.S. Equities, Commodities, and Interest Rate Instruments
Monthly Price Volatility, 1992-2003



Types of Investment Opportunities

According to Managed Account Reports (MAR), in mid-2003, it was estimated that over $45 billion was under management by futures trading advisors worldwide. Currently, there are three primary categories of managed futures.

Individual Accounts are usually opened by institutional investors or high net worth individuals. These funds usually require a substantial capital investment so that the advisor can diversify trading among a variety of market positions. An individual account enables institutional investors to customize accounts to their specifications. For example, certain markets may be emphasized or excluded. Contract terms may include specific termination language and financial management requirements.

Private Pools commingle money from several investors, usually into a limited partnership. Most of these pools have minimum investments ranging from approximately $25,000 to $250,000. These futures partnerships usually allow for admission-redemption on a monthly or quarterly basis. The main advantage of private pools is the economy of scale that can be achieved for middle-sized investors. A pool also may be structured with multiple trading advisors with different trading approaches, providing the investor with maximum diversification. Because of lower administrative and marketing costs, private pools have historically performed better than public funds.

Public Funds or Pools provide a way for small investors to participate in an investment vehicle usually reserved for large investors.

Participants in the Managed Futures Industry

There are several types of industry participants qualified to assist interested investors. Keep in mind that any of these participants may, and often do, act in more than one capacity.

Commodity Trading Advisors (CTAs) are responsible for the actual trading of managed accounts. There are over 800 CTAs registered with the National Futures Association (NFA), which is the self-regulatory organization for futures and options markets. The two major types of advisors are technical traders and fundamental traders. Technical traders may use computer software programs to follow pricing trends and perform quantitative analysis. Fundamental traders forecast prices by analysis of supply and demand factors and other market information. Either trading style can be very successful, and many advisors incorporate elements of both approaches.

Futures Commission Merchants (FCMs) are the brokerage firms that execute, clear, and carry CTA-directed trades on the various exchanges. Many of these firms also act as CPOs and trading managers, providing administrative reports on investment performance. Additionally, they may offer customers managed futures funds to help diversify their portfolios.

Commodity Pool Operators (CPOs) assemble public funds or private pools. In the United States, these are usually in the form of limited partnerships. There are more than 1,500 CPOs registered with the NFA. Most commodity pool operators hire independent CTAs to make the daily trading decisions. The CPO may distribute the product directly or act as a wholesaler to the broker-dealer community.

Investment Consultants can be a valuable institutional investor resource for learning about managed futures alternatives and in helping to implement the managed fund program. They can assist in selecting the type of fund program and management team that would be best

suited for the specific needs of the institution. Some consultants also monitor day-to-day trading operations (e.g., margins and daily mark-to-market positions) on behalf of their institutional clients.

Trading Managers are available to assist institutional investors in selecting CTAs. These managers have developed sophisticated methods of analyzing CTA performance records so that they can recommend and structure a portfolio of trading advisors whose historic performance records have a low correlation with each other. These trading managers may develop and market their own proprietary products or they may administer funds raised by other entities, such as brokerage firms.

Assessing Performance from an Investor's Perspective

There are several indexes that measure managed futures performance. Investors may wish to review each index to determine which one provides the most appropriate performance criteria for their needs.

The following is a list of some of the more familiar indexes:

Managed Futures Indexes* (Actively Managed)
Barclay CTA Index
MAR (Managed Account Reports) Indexes
MLM (Mount Lucas Management) Index

Commodity Market Indexes (Passive)
MLM (Mount Lucas Management) Indexes
Commodity Research Bureau Index (CRB Index)
Goldman Sachs Commodity Index (GSCI)
Dow Jones-AIG Commodity Index℠ (DJ-AIGCI℠)

How the Fee Structure for Managed Futures Works

Total management fees in the managed futures industry tend to be higher than those in the equities market. These fees, however, may be partially offset by the lower commission costs for comparable dollar transactions in the futures industry. While management fees do vary by the type of managed futures account and may be negotiable, there is a general fee structure. Investors should understand that performance information for a managed futures account or fund is almost always expressed net of all such fees.

Typically, the trading advisor or trading manager is compensated by receiving a flat management fee based on assets under management in addition to a performance "incentive" fee based on profits in the account. The performance fee is almost always calculated net of all costs to the account, such as management fees and commissions. The performance fee is thus based on net trading profits, which are usually paid only if the account or fund exceeds previously established net asset values.

A few trading managers assume the "netting risk," whereby the performance results of all trading advisors in the account are netted before the investor is charged a performance fee. The trading manager assumes the netting risk by paying each CTA according to his or her individual performance.

In addition to management and performance fees, an account or fund pays transaction costs or brokerage commissions. These expenses reflect the cost of executing and clearing futures and generally are calculated on a per-round-turn basis.

* Contact information on inside of back page.

Investor Safety Is Paramount in the Futures Market

Protecting the interests of all participants in the futures market is the responsibility of exchange and industry members as well as federal regulators. Working together, they ensure the financial and market integrity required by investors.

A brief overview of the Chicago Board of Trade (CBOT®) and it's clearing service provider will illustrate why the credit risk of exchange-traded products is minimal for futures investors.

The Market Integrity of the CBOT...

CBOT rules and regulations are designed to support competitive, efficient, and liquid markets. These rules and regulations are reviewed continuously by the CBOT and are periodically amended to reflect the needs of market users.

Making sure that these trading practices and regulations are followed is the responsibility of the CBOT's Office of Investigations and Audits (OIA). The OIA staff works to prevent trading irregularities and investigate possible violations of exchange and industry regulations. The activities of the department include daily on-site surveillance of trading activity, continuous monitoring of member firms' trading practices with state-of-the-art technology, and prompt, thorough investigations of any customer complaints.

...Combined with the Financial Integrity of Clearing

Clearing operations are another mechanism used by exchanges to uphold the integrity of the futures markets. The clearing service provider (CSP) for the CBOT acts as a guarantor to clearing member firms for trades it maintains, reconciles all clearing member firm accounts each day to ensure that all gains have been credited and all losses have been collected, and sets and adjusts clearing member firm margins for changing market conditions.

The CSP settles the account of each member firm at the end of the trading day, balancing quantities of contracts bought with those sold. In clearing trades, the CSP substitutes itself as the opposite party in each transaction, essentially eliminating counterparty credit risk. It interposes itself as the buyer to every clearing member seller and the seller to every clearing member buyer and becomes, in effect, a party to every clearing member transaction. Because of this substitution, it is no longer necessary for the buyer (or seller) to find the original seller (or buyer) when one wishes to offset a position. The market participant merely executes an equal and opposite transaction, usually with an entirely different party, and ends up with a net zero position.

One of the most important financial safeguards in ensuring performance on futures contracts is the clearing margin, which clearing member firms must maintain against their position in each commodity. These margins are set by the CSP margin committee and governors. They are separate from the margins that individual holders of commodities accounts are required to deposit with brokers by exchange regulation.

The CSP settles its accounts daily. As closing or settlement prices change the value of outstanding futures positions, the CSP collects from those who have lost money as a result of price changes and credits the funds immediately to the accounts of those who have gained. Thus, before each trading day begins, all of the previous day's losses have been collected and all gains have been paid or credited. In this way, the CSP maintains very tight control over margins as prices fluctuate and ensures that sufficient margin money is on deposit at all times.

For More Information about the Futures Market

The Chicago Board of Trade is dedicated to helping investors learn more about the benefits of using the futures market. It thus offers a wide variety of educational publications and research materials which can be reviewed and ordered online at **www.cbot.com**.

For More Information about Managed Futures

Contact the sources listed here for information on CTAs, commodity pools, how to open a managed account, and other topics related to managed futures.

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EM35-2R1a 03.04.NA 04-03604

Industry Associations

Managed Funds Association (MFA)
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Washington, DC 20036-3309
202-367-1140 / Fax: 202-367-2140
www.mfainfo.org

Futures Industry Association (FIA)
2001 Pennsylvania Avenue NW, Suite 600
Washington, DC 20006-1807
202-466-5460 / Fax: 202-296-3184
www.futuresindustry.org

Reporting Services

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508 North 2nd Street, Suite 201
Fairfield, IA 52556
641-472-3456 / Fax: 641-472-9514
www.barclaygrp.com

International Traders Research, Inc.
1020 Prospect Street, Suite 405
LaJolla, CA 92037
858-459-0818 / Fax: 858-459-0819
www.managedfutures.com

Managed Account Reports (MAR)
1250 Broadway, 26th Floor
New York, NY 10001
212-213-6202 / Fax: 212-213-1870
www.marhedge.com

Regulatory Agencies

Commodity Futures Trading Commission (CFTC)
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www.cftc.gov

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