

Commodity Trading Advisors

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Market size

- The current size of the global capital markets is estimated to be about \$55 trillion, according to Anjilvel, Boudreau, Johmann, Peskin and Urias (2001).
- Investments in mutual funds make up about 18 percent of this total
- Investments in hedge funds amount to almost 1 percent of this amount, according to indicative estimates by the above mentioned authors.
- Jaeger (2002) estimates that managed futures strategies make up about 5 percent of the hedge fund universe.

CHARACTERISTICS OF MANAGED FUTURES PARTICIPANTS

- **Low Barriers to Entry**
 - The large number of small CTA's is likely due to the low cost of entry. According to McGuinness (2003), a start-up hedge fund generally requires at least \$20 million in trading capital to effectively cover operating costs. In contrast, CTAs trade in exchange-traded options and futures with relatively low margin requirements.
 - It is not unusual for a start-up CTA to trade an account as small as \$250,000, which would only require about \$25,000 in margin. A start-up securities hedge fund, on the other hand, requires lines of credit with prime brokers and all manner of over-the-counter derivatives documentation. McGuinness (2003) notes that the start-up costs of a securities hedge fund are about \$275,000.
- **Trend-Following is the Predominate Style**
 - “The trading is based on the systematic application of quantitative models that use moving averages, break-outs of price ranges, or other technical rules to generate the ‘buy’ and ‘sell’ signals for a set of markets.”

Trend following approach

- A trend-following program may trade as many as 80 different markets globally on a 24-hour basis. Trend-followers try to capture long-term trends, typically between 1 and 6 months in duration when they occur.
- Trend-followers will scan the markets with quantitative screens designed to detect a trend. Once the model signals a trend, a trade will be implemented. A successful trend-follower will curb losses on losing trades and let the winners ride. That is, false trends are quickly exited and real trends are levered into

Where does the alpha come from

Trend-following alpha will reflect the skill in leveraging the right bets and de-leveraging the bad ones as well as using superior entry/exit strategies. Negative alphas will be accorded to those managers that failed to lever the right bets and showed no ability in avoiding losing bets irrespective of the level of overall portfolio return

Option-Like Payoff Profile

- A trend-following strategy aims for a payout profile similar to a long option strategy
- Almost like a call option, the downside risk is to a certain extent limited, and the upside potential rather open. ... This is because the dominant strategy, trend-following, will generate strong returns in times when the markets are trending, and during sideways markets the risk management guidelines will try to limit the losses.
- CTA returns are generally positively skewed

Option like returns

- Because of this call-option-like return profile, trend-followers are sometimes classified as a long option strategy
- This is in contrast to short option strategies where one earns steady, small returns but is exposed to infrequent, but large draw-downs.
- Some hedge fund arbitrage strategies appear to provide the latter type of return profile.

Long event risk

- Fung and Hsieh (1997) note that trend-following CTA returns are similar to the payoff profile of out-of-the-money call and put options (or a straddle) on equities.
- “Trend-following has a high negative correlation to equity markets during periods of perceived crisis in those markets. We believe this occurs because a global consensus emerges about macroeconomic conditions, which causes various markets, particularly currencies, interest rates and equities to move in tandem. When this consensus is further confronted by an ‘event,’ such as a major country default, the ‘event’ will reinforce the crisis mentality already in place and drive those trends toward their final conclusion.”

Return Replication of Trend-Following Systems

- There have been at least two attempts at modeling the returns of trend-following CTA's.
- Spurgin, Schneeweis, and Georgiev (2001) create a benchmarking algorithm centered around a set of mechanical momentum strategies.
- Fung and Hsieh (2001) replicate the returns of trend-followers with a basket of straddles on interest rates, currencies and physical commodities.

Spurgin, Schneeweis, and Georgiev (2001)

- Create a benchmarking algorithm centered around a set of mechanical momentum strategies
- momentum strategies based upon three different crossover points, 15, 27 and 55 days
 - That is, if a futures price is greater than its price t days ago, where $t=15, 25, \text{ and } 55$ days, a long position in a particular market is adopted. Otherwise, a short position is adopted.

Fung and Hsieh (2001)

- Formalize the notion of trend-followers as being long options by likening the strategy to a portfolio of lookback straddles
- Under an option strategy with a lookback feature, the owner is allowed to exercise their option at the underlying asset's extreme price over the life of the option.
- The owner of a lookback put would have the benefit of selling the underlying asset at highest price over the option's horizon while the owner of the lookback call would have the benefit of buying at the lowest price.

Fung and Hsieh (2001)

- On a stand-alone basis, lookback straddles on currencies have the highest explanatory power, followed by commodities, short-rates and bonds.
- Like the momentum indices approach, the lookback straddle methodology cannot capture the magnitude of returns (again likely due to the dynamic nature of leverage used by trend-followers.)

Appropriate metrics for comparing CTA strategies with hedge fund investments

- The risk premia.
 - There are multiple sources of risk which can produce high average returns besides the market risk factor. If an investor passively bears any of these risks, the investor will earn a return which is not conditioned upon superior information. There may be large losses from bearing one of these risk factors, resulting in a short-option-like return distribution, but the returns over time are sufficient to make the activity profitable. These returns are called risk premia.
 - A number of hedge fund strategies appear to be earning risk premia. In other words, they earn returns because they are performing an economic function, which involves some form of risk transfer. For example, one could argue that a relative-value bond fund earns its returns by taking on the illiquid assets that international banks wish to get rid of when banks reduce risk. The fund hedges this risk by shorting liquid assets. A relative-value bond fund thereby provides reinsurance for financial institutions, but it also exposes the fund to liquidity crises. An examination of empirical data shows that relative-value bond funds have short-option-like returns. An investor in such funds assumes the risk of systemic financial distress and provides other investors with the flexibility of being able to readily liquidate their investments. A relative-value bond fund is in essence providing real options to other investors.

Problem with Sharpe

- One issue with the Sharpe ratio is that it can inadvertently favor short option strategies. One may be earning premia in compensation for taking on the risk of rare events. In other words, by undertaking a maximum Sharpe ratio strategy, an investor may be accepting negatively skewed returns in exchange for improving the mean or variance of the investment.

A Beta-Adjusted Return Metric

- Asness, Krail and Liew (2001) that the lack of relationship of hedge fund indices to the S&P 500 is largely due to the reporting of stale prices for hedge fund positions
- They compare the hedge fund index's returns to dated returns in the stock market, and infer that hedge funds making up the index may have been using stale pricing to evaluate their holdings

Sharpe ratio

Portfolio	Monthly Unhedged Sharpe Ratio	Monthly Beta Hedged Sharpe Ratio	Summed Beta Hedged Sharpe Ratio
Aggregate Hedge Fund Index	0.8	0.31	-0.4
Convertible Arbitrage	1.07	0.95	-0.11
Event Driven	1.05	0.55	-0.27
Equity Market Neutral	1.85	1.55	1.06
Fixed Income Arbitrage	0.35	0.28	-0.56
Long/Short Equity	0.94	0.39	-0.23
Emerging Markets	0.11	-0.47	-0.82
Global Macro	0.54	0.18	-0.4
Managed Futures	-0.1	-0.12	0.14
Dedicated Short Bias	-0.38	0.61	0.89