

Calmar ratio: A smoother tool

By Terry W. Young

Over the last decade, the Sharpe ratio and Sterling ratio have been the most widely used methods to measure commodity trading advisor (CTA) performance.

The Sharpe ratio, the first to gain general industry acceptance, measures a trader's volatility and consistency using standard deviation and the risk-free cost of money. One of the problems, however, is that over time the risk-free value of money changes. That alone will alter the ratio.

The Sterling ratio ignores both the opportunity cost of money and standard deviation of monthly results. Instead, it measures the pure volatility of an investment relative to the earnings of a trader through the last three calendar years. The major drawback is that a calendar year can be a lengthy time. Thus, the measurement is insensitive.

(See "How to Test a System's REAL Trading Performance," *Futures*, February 1991, for more on the Sharpe and Sterling ratios.)

The Calmar ratio is an improvement on both the Sharpe and Sterling ratios in that it provides an up-to-date appraisal of a CTA's success. The Calmar ratio uses a slightly modified Sterling ratio — average annual rate of return for the last 36 months divided by the maximum drawdown for the last 36 months — and calculates it on a monthly basis, instead of the Sterling ratio's yearly basis.

As with the Sterling and Sharpe ratios, higher values are considered better. Negative numbers are carried as zero. Because negative Calmar ratio numbers reflect negative performance, there is no immediate need to evaluate trading programs that are losing money for investors. In today's trading environment, a Calmar ratio of one plus is good, three plus is excellent and five and above is terrific.

Smoother reading

The Calmar ratio changes gradually and serves to smooth out the overachievement and underachievement periods of a CTA's performance more readily than either the Sterling or Sharpe ratios.

In addition, the Calmar ratio can act as an early warning system. If a CTA's Calmar ratio begins to trend downward, investors should re-evaluate their portfolio allocations, making sure to note whether the deterioration is a result of increased volatility, lower earnings growth or merely a correction back to a more reasonable rate of return following abnormally high yields 30 to 40 months ago.

A "risk-adjusted" Calmar ratio also may be calculated for CTAs being monitored each month. This ratio (average re-

turn of three 12-month periods divided by average maximum loss for those same periods) serves to penalize CTAs achieving modest rates of return with modest drawdowns.

CTA Y who had three 12-month periods yielding 50% with a 15% maximum drawdown, 25% with a 10% drawdown and 50% with a 15% drawdown has a risk-adjusted return for those three years of 3.13 and a Calmar ratio of 2.78. CTA Z with returns of 25% and a maximum drawdown of 5%, 15% with a 10% drawdown and 25% with a 10% drawdown has a risk-adjusted return for those years of 2.60 and a Calmar ratio of 2.17. Both performance records are

envious and would generate considerable investor interest. However, in this example, CTA Y clearly would be the better vehicle for most investors.

We took a sample of eight CTAs and compared the ratio rankings under the Sterling, Sharpe and Calmar ratios. The top advisor under the Sharpe ratio

was third best under the Sterling and Calmar ratios. The eighth best advisor under the Sharpe ratio was actually ranked seventh by the other two ratios. Although this was a small, preselected sampling, the ranking discrepancies are quite material.

The chart plots the Calmar, Sterling and Sharpe ratios for a relatively volatile trading program during the period of February 1988 to March 1991. February 1988 is the first three-year, or 36-month, window available for inspection.

As the volatility of monthly returns increases in 1988, two ratios decline rapidly. The Sterling ratio, however, does not change until a year later. And it takes a full three years for the Sterling ratio to catch up with the other ratios.

The Sharpe ratio is almost too sensitive to monthly performance numbers. The Calmar ratio does a better job of smoothing performance results and, therefore, encourages a longer-term investment outlook, which is widely recognized to be one of the best ways for investors to maximize their investment portfolio returns.

The Calmar ratio is not the only evaluation index an investor should monitor when inspecting the performance of money managers. However, it is a useful tool for tracking advisors as they revise and adjust their approaches to ever-changing markets. The Calmar ratio promotes a truer picture of investment performance results. □

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Calmar, Sterling and Sharpe ratios

(Example of ratios comparisons for a given portfolio)

