

The Computerized Trader

	A	B	C	D	E	F	G
1	Month	Returns	VAMI	Drawdown	Trading Performance Statistics		Spreadsheet Formulas
2	Jan-93	13.00	\$1,130	0.00	Annual return:	44.62	{=(PRODUCT(1+(Returns/100))-1)*100}
3	Feb-93	-2.86	\$1,098	2.86	Average monthly return:	3.58	=AVERAGE>Returns)
4	Mar-93	-9.87	\$989	12.45	Standard dev. of returns:	10.21	=STDEV>Returns)
5	Apr-93	-3.71	\$953	15.70	Sharpe ratio:	1.21	=F3/F4*SQRT(12)
6	May-93	6.47	\$1,014	10.24	Best month:	21.11	=MAX>Returns)
7	Jun-93	8.05	\$1,096	3.02	Worst month:	-9.87	=MIN>Returns)
8	Jul-93	13.20	\$1,241	0.00	Deepest drawdown:	15.70	=MAX'Drawdown)
9	Aug-93	-2.00	\$1,385	0.00	Total drawdown measure:	27.53	{=SQRT(SUM'Drawdown^2))}
10	Sep-93	-7.00	\$1,288	7.00	Sharper ratio:	1.62	=F2/F9
11	Oct-93	-7.00	\$1,198	13.51	Named ranges: "Returns" =B2:B13		monthly percent return data
12	Nov-93	13.56	\$1,361	1.78	"VAMI" =C2:C13		=Prev.VAMI*((Returns/100)+1)
13	Dec-93	21.11	\$1,648	0.00	"Drawdown" =D2:D13		=(1-(VAMI/MAX(\$C\$1:C2)))*100
14					"Prev.VAMI" =R[-1]C		(always refers to value directly above it)

Sharper.xls: This Excel 4.0 (PC or Mac) spreadsheet is available on CompuServe's Investor's Forum Library (GO INVFORUM, browse for files with keyword Sharpe).

A sharper Sharpe ratio

By Gibbons Burke

Evaluating the trading performance of a trading system or a trading advisor can be complicated. Computers can easily generate reams of statistical facts about the data, but understanding what it means is a different matter.

Looking at a chart of an "equity curve," a line that shows the value of the money in a trading account over time, it is easy to separate the good equity curves from the bad ones. Good ones start on the lower left side of the chart, and progress in a straight-line fashion to the upper right side of the chart. The bigger the number at the upper right side of the chart, the better. The opposite is true as an example of a bad equity graph.

These are the extremes. Most trading performance profiles fall in between, but when you look at the chart, it is fairly easy to say one chart looks "better" than the other, but it is less easy to come

to an objective measure of why. The things we look for in a trading performance chart are:

1) The line slopes generally upward through time, indicating a positive return. The more positive the better.

2) The "zig-zag-iness" of the line. A straight line is better than a crooked one because it means there will be fewer, smaller negative return periods to endure.

These factors are readily apparent to the eye, but the eye also can be easily deceived. When equity charts are created, they are usually "scaled" so the plot fills the vertical space in the chart. The lowest low point in the line will be near the bottom of the chart, and the highest high will be near the top. This can make visual comparison between two different equity charts dangerous, because it is likely they will be using different vertical scales. A trader who has made \$100,000 in a year starting at zero may look identical to one who made \$1,000, if you don't look at the numbers on the scale.

Two aspects our eyes pick up easily are the slope of the line (overall return), and the bumpiness of the line (standard deviation). A high standard deviation indicates a bumpy ride, a low standard deviation indicates a smooth ride.

William Sharpe put these two measures into a ratio by dividing the total return (minus the risk-

free rate of return) by the standard deviation of returns (a measure of risk) to end up with a simple reward/risk ratio. The Sharpe ratio is like the signal-to-noise ratio in electronics — higher numbers indicate better performance.

But there are problems. Many complain the Sharpe ratio penalizes a trader's upside variability (desirable) along with downside variability (the dreaded drawdown). Fortunately, a simple modification eliminates the problem. Rather than using standard deviation of returns as the denominator in the Sharpe ratio, take the square root of the sum of the squares of each monthly percentage drawdown. (Squaring stiffly penalizes deep, extended drawdown periods versus lots of very small drawdowns.)

A spreadsheet "VAMI.XLS" containing formulas for standard measures of trading performance appeared in this column in August 1993. A modified version, above, shows how to calculate the Sharper ratio. Note: 1) Create a named range called "Drawdown" for cells D2:D13. 2) The formula for the drawdown denominator is entered as an array by typing the formula without the curly braces and pressing <Control><Shift><Enter> (<Command><Return> on a Mac).

FM

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