

## TRADING RECIPES and Fixed Fractional Strategies

This article was excerpted from one of a series of postings

This series of postings has described my project developing a fixed-fractional position-sizing strategy. I explained how I have developed the money-management methods I have been using in real time trading individual markets. In the last installment of this series, I announced that I was starting work on stage two of the project, the portfolio-testing stage, because I now have TRADING RECIPES --the only commercially available program for such testing.

I want to report here on the completion of my fixed-fractional strategy, using TRADING RECIPES. Completing this second stage of the project has made my futures trading more aggressive in two ways. I am now trading 15 markets, instead of 12. The fixed fraction I am using has now increased from 4% to 4.2%. These two combined actions have positioned me to trade with higher reward and risk levels than I could have accepted without the confirmation of TRADING RECIPES' portfolio testing reports.

TRADING RECIPES has been more than helpful in many ways: giving an overall view of the progressive effects of position sizing; tracking increasing margin and its problems; showing how changing parameters affect profit, drawdown, costs, and starting capital required; aiding the selection of the best systems and markets to trade; optimizing fixed fractions for position sizing; providing worst-case analyses to determine performance variations; and providing the basis for future changes in aggressiveness.

First, TRADING RECIPES has given me a time-oriented perspective of the power of systematically compounding through reinvestment. Below are shown the increases in reward and risk with fixed fractions from 4 to 7%, using my 15-market portfolio from 11/20/89 to 8/9/99, a total of 297 trades. If I had continued with my recent 4% fraction over the whole 11-year period, my \$200,000 starting capital (discussed in Part 5) would have produced a net profit of \$742,000,000, with a 39.5% maximum drawdown. What a mind-blowing prospect!

f (%)	4.0	5.0	7.0
NP, M\$	742	1456	2766
MDD, %	39.5	43.0	51.8

At  $f = 7\%$ , profits would have approached 3 billion. Above that, margin calls would be a problem. I have mixed feelings about such outcomes. Such giant profits demonstrate the power of position-sizing methods, but to me seem a bit scary--perhaps obscene. At any rate, I do not aspire to a decade of such escalation. I do not welcome the prospect of having to deal with such big bucks. So far though, I am becoming accustomed to handling increasing numbers of contracts, instead of reinvesting the money in mutual funds.

For my next few years of trading, I prefer to focus on the profits of the last three years tested. From 8/9/96 to 8/9/99, the net profit from mechanical trading at 4%  $f$ , starting with \$200,000, would have been \$1,940,000, with 38.8% MDD. The performance would have been similar for the first three years of the 11-year period. Compounding beyond that is what moves equity to nine digits.

Second, TRADING RECIPES detects when, and under what conditions, margin calls would have occurred. One remedy it offers is providing a cap on new margin when each trade is initiated, based on the amount that a key percent of equity (K) exceeds the total margin of currently open trades. Detailed portfolio data over the whole period permits tracking the number of contracts in each market, along with drawdowns and potential margin problems.

Third, TRADING RECIPES clarifies the impact of various assumptions or input parameters on total portfolio performance. It allows one to try various combinations of systems and of markets. The summary results I see include total costs of commissions and slippage, and the minimum amounts of starting capital required. Besides profit and drawdown, the usual performance statistics appear for each run: largest (and average) winning and losing trades, comparisons of longs and shorts, average win/average loss ratio, percent wins, longest drawdown, and other typical items.

Fourth, TRADING RECIPES helped me choose which systems and futures markets I want to trade. On a single-contract basis, I tested markets in both Trade Station and TRADING RECIPES. The results were similar, except that Trade Station excludes the value of open trades at the ending date, while TRADING RECIPES includes them. For my long-term systems, I prefer this inclusion of open equity.

Of great help is TRADING RECIPES's ability to evaluate the benefits of diversification. I could set a limit on the number of simultaneous positions in any one group of markets (such as currencies, or interest rate) so that new trades in excess would be rejected. I found it better to take all trades in good markets than to restrict positions in markets with positive correlation. For equivalent drawdowns, the profits are better with unrestricted trading. Ralph Vince makes the point that diversification's main advantage is getting more trades on, not the reduction of drawdowns.

I was trading no more than 12 of my 14 markets at one time, but have dropped such restrictions. Also, I found that over longer periods, four markets did so poorly when short that I decided to trade them long-only. This restriction is a "No, No" for many traders, but I find that in certain more-speculative, lower-liquidity markets, bullish fever sustains playable trends better than the bearishness of short trading. This is true of the two markets where wider, 2.5 standard-deviation breakout bands work best (KC, CT). I also found that exiting the often-dramatic upward rallies in more volatile, speculative markets tends to be done best with stops at the moving average, rather than waiting for a close-only crossover.

My final choice of 15 markets includes 11 traded long-and-short (the majority with 1.7 standard-deviation bands) and 4 traded long-only. Moving from 12 up to 15 markets increases the portfolio's total aggressiveness for any choice of fixed fraction  $f$ . This re-evaluation has added to my confidence about future performance, and has reduced my temptation to deviate from strictly mechanical trading. I have come to accept that discretionary action tends to undermine any position-sizing strategy.

Fifth, TRADING RECIPES has been essential in my other move toward more aggressiveness, increasing  $f$  from 4% to 4.2%. Comparing parameters for a position-sizing algorithm can be done with a combination of TradeStation and spreadsheet, but I finally decided against this more labor-intensive approach, in favor of a tested program that I can use in communication with other users. The price of Trading Recipes seems insignificant, relative to the large profits available through tested position-sizing.

The fixed fractions in the above table go to 7%, but the recommended maximums mentioned in Market Wizards go only as high as 5%. I have decided that a target ceiling of 40% drawdown matches my own risk tolerance. TRADING RECIPES shows that  $f$  can be increased from 4% to 4.2% without exceeding 40% MDD for my portfolio. Because my growing futures trading capital is a segregated portion of our family resources, I can and must expect such a temporary retracement in the future with a calm discipline.

Sixth, TRADING RECIPES offers a worst-case analysis that gives alternative simulations. Starting the run on all the different trade start dates of the first year showed an MDD range from 39.2% to 40.9%, thus giving an indication of how much the arbitrariness of the initial date can affect drawdown. Also, a walk-forward test of different 3-year periods can give a picture of the varying market environments over the 11 years. TRADING RECIPES also provides graphs that show drawdown frequency and the smoothness or roughness of equity curves.

Seventh, TRADING RECIPES provides the basis for deciding whether I want to vary my current aggressiveness down the road--an issue stressed by Ryan Jones and others. Varying  $f$  over different time periods shows that once compounding has boosted equity over several years, a decade's profits are awesome even when the risk level is cut back substantially. I find my present aggressiveness as high as I want to go, but believe that after 3 years, I will want to consider a plan for reduced aggressiveness. If I have met the challenge successfully by then, I will need to weigh future profits against a comfortable style of trading. Will I really want to pile on 40-60 contracts per trade? 80-100? 150-200? I see no need to decide that now.

In sum, TRADING RECIPES has given me the means to finalize development of my fixed-fractional strategy. Without it, I would be flying blindfolded. In the future, I plan to be exploring alternative strategies that use a different fraction ( $f$ ) for each market.