Testing, Testing, 1,2,3 …

by Sunny J. Harris

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There is only one reason to trade the futures market: TO MAKE MONEY. Trading for the thrill is not a rational choice, and is usually short-lived, because losing money generates just as much an adrenaline rush as making money. Trading without a business plan, without a clear-cut system, can be fun, but dangerous and costly.

As a mathematician and programmer, my view of the world is based in symbolic logic, and IF ... THEN statements. I'm a strong believer in cause and effect. Thus, as a trader, I view the markets in a systematic fashion, with mathematical definition. Decision trees (IF this happens, THEN will follow, but IF the other happens, THEN something else will follow) rooted in mathematics are the basis for my trading.

Some may say that they trade on intuition, and that is their skill. My premise is that intuition is based on an unconscious set of rules, and that those rules can be translated to a computer program. Those who already trade with a set of clearly defined rules can immediately translate them to a computer program.

IF it's skill which generates the profits, THEN whether consciously or unconsciously, the trader has a set of rules in mind. IF the trade is following rules, THEN the system can be tested and verified.

I have met many traders who test their rules by hand, that is, with paper and pencil and sometimes a calculator. There is nothing wrong with that. This method is very time consuming, and the tendency is to give up after testing only a small subset of the data. Further, I find the hand testing method to be prone to two types of error: wishful thinking and calculation error. Calculation error is obvious, one makes a simple arithmetic mistake. Wishful thinking goes like this: "Oh, I would have taken that trade, even though this system doesn't show it." It's akin to outsmarting the system, but is more subtle.

Another frequently used method of testing one's system is through the use of a spreadsheet program, such as Lotus 1-2-3 or Excel. In the beginning of our trading experience, that is exactly what we did. And in fact, we still use spreadsheets to verify the accuracy of test results from other computer programs. The limitation with this method is the amount of data a spreadsheet will handle, and the convenience and clarity of the output.

At Sunny Harris & Associates, Inc., we are adamant about testing systems. Computer testing of systems is very much like running a scientific experiment. Hypotheses are generated, assumptions are made, and the experiment is set up so as not to prejudice the results with the bias of the tester.

We consider a trading system valid only after rigorous computer testing and verification. And we are firm in our belief that a system must be tested over the largest set of data available. There is much discussion in the trading community about statistics: how many trades does it take to be statistically valid? The answer I have heard echoed most often is "thirty". I couldn't disagree more.

My master's thesis in mathematics was devoted to the subject of curve-fitting, that is, approximating a set of data with an equation, or curve. Having spent years in pursuit of just the right equation to approximate the data, I also know how to avoid curve-fitting. In the futures market, to fit the historical data accurately with a polynomial equation is to restrict the degrees of freedom to the extent that the

future action will not be correctly predicted. In other words, the less complicated the model, the more it seems to work overtime.

To test a system over a set of data which produces only thirty trades would generate a very nice model which would work well in the past, but as the markets fluctuate and the mood changes from bull, to bear, to sideways and back again, the model with thirty trades would probably prove to be only accurate over that subset of data.

IF a system passes historical testing criteria and produces favorable results, THEN it must be traded without variation. IF the trader's testing is adequate, THEN the key to success is to hang in there. Do not give up during periods of drawdown. Drawdown is an inevitable part of trading. Computer testing allows the most complete and accurate analysis of market data: Use it!

Computer trading is very similar to flying by instruments in an airplane. First you test your instruments, and then you test them again, THEN you must rely on those instruments and follow your flight plan without regard to the fog around you. The same is true with computerized trading. Establish your system, test it, test it again, and then trust your instruments. Trading then becomes as easy as 1,2,3.