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An Official Guide to Trading System Design Part II (Promising Trading Tools and Methods)

Bob Pelletier continues his brief sabbatical from writing the CSI Technical Journal while he devotes his energies to engineering and implementing CSI's forthcoming data delivery system. This article is a slightly modified reprint from the October, 1994 issue. It is the second installment in a three-part series dealing with the development of a trading plan. This month, the all-important issue of selecting or designing a trading system is discussed.

The Trading System

A trading system should be an integral part of your overall plan. We are fortunate that the personal computer revolution has made trading and system planning accessible to all investors. The introduction of the computer does not, by itself, guarantee any level of success, however. Success will depend upon how well you design and integrate your management approach. Even the best trading system will fail if it is devoid of a workable plan that includes checks and balances to verify your methodology and focus.

Designing a System

Begin by purchasing or, if you have some programming ability, developing a systematic procedure for generating buy and sell signals. Don't be too specific about the markets you will address with each system. A good system will work well for several markets. For example, a system for oats that is different from one for wheat, that is different from one for corn, etc. could well be a problem. It may represent too much control and consume too many degrees of freedom, thereby restricting performance in real trading. Try to group your markets

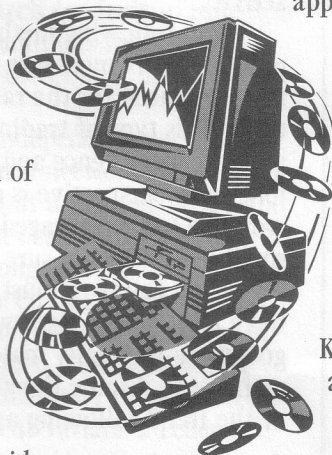
into a few categories such as grains, currencies, metals, etc. for like handling. This will allow diversity of approach for classes of markets.

Capitalizing on Diversity

In your search for a trading system to meet your needs, you should investigate analytical methods that are conceptually diverse. I suggest mixing approaches such as neural networks, chaos theory, Kalman filtering, momentum, auto regressive integrated moving averages and simple breakout methods. This is an abbreviated list of the possibilities you might consider. Remember that diversity of method and market reduces investment capital requirements, a necessary element of every trading plan.

Your trading system should also look to the diversity of global markets available to U.S. and overseas traders. A well-conceived plan will incorporate many of the newer overseas markets to find success (please see CTJ794 and CTJ894). Your next real profit opportunity may be overseas. Please don't expect a bargain where fees and commissions are concerned, however. Overseas markets typically charge more, much more perhaps, than you are accustomed to paying at U.S.

(continued on Page 2)



An Official Guide ...
(continued from page 1)

“...when the Kalman filter suggests market entry, it can do so much more quickly than would a moving average filter, which may take days longer.”

exchanges. If you are a very active trader, however, you may negotiate a low commission cost for all markets, including overseas. One active trader reported to me that he pays \$11 per round turn regardless of exchange, market or country of origin.

Classifying Trading Systems

Trading-system approaches generally fall into the two basic areas of 1) Trend Following, and 2) Counter Trend Following. Trend following systems simply follow the market's basic trend direction. Counter trend systems look to buy or sell on dips or bulges in price activity.

Trend following methods may produce many moderate to small losses in your search for the rare winning trade. This type of trading requires patience, persistence and capital. A long-term perspective is needed so you won't be too discouraged by the many small losses you are sure to endure. The trend follower must take care to have positions in place when that golden move finally materializes. It is difficult to dispute the general merits of the trend following approach.

Breakout Systems

Breakout systems are a popular form of trend-following system. They are simple to program and users are always poised to enter the markets in the trend direction. They can be designed to produce a good simulated track record with a minimum of parameter control. Non-trending, sideways markets produce heavy losses with this approach. Currencies, on the other hand, appear to experience more sustained trends and have produced fairly lucrative results. There is definitely room for the breakout method in every portfolio of tools.

The Kalman Filter

The Kalman filter is another super tool of the trend-following genre for

tracking market movement. It is a differential filter that minimizes response lag. Thus, when the Kalman filter suggests market entry, it can do so much more quickly than would a moving average filter, which may take days longer. A drawback of the Kalman filter is that it is difficult to formulate. Making sense from economic time series input is more difficult than, say, the geophysical forces the Kalman filter is called upon to consider in satellite or missile tracking. Finding a workable Kalman filter often boils down to controlling a parameter known as the “Kalman gain.” The Kalman gain in mismodeled systems stubbornly moves toward zero. It is in the user's best interest to keep the gain propped up so the filter will quickly adapt to marginal market movements.

Counter-Trend Analysis

Counter-trend systems depend upon choppy market conditions. I consider them to be inherently dangerous. What appears to be a temporary drop or jump in the market may, in fact, be the beginning of a new trend. For the counter-trend trader, a powerful trend can consume vast resources very quickly.

Another serious defect in counter trend approaches is that you will always miss those sweet profit opportunities that come with long, uninterrupted trends. In the long run, counter trend methods produce many small profits and occasional large losses that will inevitably take the profits away.

Neural Networks

Neural networks are hybrid systems that can include both trend and counter-trend analysis. In a neural network, market direction is projected daily, but much of the decision making depends upon how the analyst/designer interprets the data. A Neural Network can look forward several days into the future, albeit

with decreasing reliability. The neural network may have the ability to measure market forces and determine whether a given market is expected to be indeterminate or potentially prone to a trend.

For neural networks or nearly any trading approach, the need to look beyond tomorrow depends upon how much time is needed to react to the advice. As Winston Churchill said, "It is a mistake to look too far ahead. Only one link of the chain of destiny can be handled at a time." Being warned about tomorrow is all anyone should need because there is always time to make an appropriate correction after sleeping on the advice. Your plan must include the ability to be spontaneous in such situations.

Neural network output can take many forms. The system may tell general directional tendency such as, "strongly up," "moderately up," "weakly up," "neutral," etc. Or it might take a more forthright path with explicit trading signals such as, "Buy at the market's opening price and follow your position with a trailing stop introduced daily." Most users of a trading system should prefer the explicit advice. In this mode, there is little doubt about the performance measurement and the system developer will be more accountable.

Neural networks excel when offered heavy doses of comprehensive data. A complete data base covering all the possible inputs is often the key to developing a workable and profitable result. CSI's data base offers more depth of coverage than any other. Neural Network traders should do well with CSI's comprehensive, global resources on futures, options, stocks, funds and fundamentals.

Neural Net Data Conditioning

The data conditioning effort required before the neural network processor can be engaged is an impor-

tant aspect of your trading plan. This step deliberately takes the apparent identity away from your input data. To a neural network, all data has the same dimensionless appearance. The data form recommended is in directional standard deviations over time, or a time series of readings ranging from zero to one, or from minus one to plus one, etc. Each dimensionless set is derived solely from the independent time series of which it is a part. Taking ratios, averaging, filtering and other useful measures are required to develop the input. The conditioned input can be used by the neural network software to search for fruitful independent pre-conditions that may give rise to reliable directional market predictions.

Keep your independent variable count low. Neural networks excel with many diverse, but unrelated, series. Too many data series can confuse a network and prolong the training/processing step. Consider indexing like inputs using the methods suggested in CTJ893 and CTJ296. This will help to simplify and accurately target pertinent independent variables. Federal Reserve Chairman Alan Greenspan recently announced that many of the government's commodity indices are out of date. Perhaps he, too, has seen the need to reduce and simplify certain model inputs.

Opportunities are great with any of the systems discussed above, particularly with balanced diversification. Next month's final installment of this article will continue with this theme. We'll also move forward into the areas of measuring performance, integrating results and evaluating your chances of achieving success. Tune in for more insightful ideas on conquering trading system design problems and pitfalls. Your success may depend on it. ♦

Bob Pelletier



Ask Customer Service

Each month in this column our Customer Service Staff addresses a topic of interest to many CSI subscribers. This month, they discuss the important subject of identifying, reporting and correcting the rare errors reported by CSI.

Welcome Aboard!

Please join us in welcoming Mindy and Jay to our Marketing and Customer Service staff. They are both service-oriented professionals with extensive computer backgrounds. We feel fortunate to have them join us and we hope their expertise will enhance your relationship with CSI. The added phone coverage they provide should make it easier for you to get the support you need.

Customer Service Hours:

9:00 a.m. to 10 p.m.
weekdays
Phone: (407) 392-8663
Fax: (407) 392-7761
E-Mail:
techsupport@csidata.com

Q. *For the first time since I subscribed to CSI, I think I have an error in my data. What should I do now?*

A. If you think there is an error in today's daily update, please call or send a message via the subsystem or fax to our service staff as soon as possible. If we already know about the error (or lack thereof, as in the case of CBT March '96 wheat contract on its expiration day), we'll give you the information we have and whatever instructions are required to make necessary corrections. Every report is researched and we welcome inquiries, even if they turn out to be accurate representations of market aberrations.

In rare cases, the price you received might not match the one stored in our host computer. This can occur when phone noise corrupts a transmission in such a way that it slips through our on-the-fly check summing routine. If this happens to you, you'll probably be advised to re-collect your daily update. If an error is still suspected, we'll refer the information to our data department representatives. They will compare our price with the one quoted by the exchange and post appropriate revisions when necessary.

Q. *What about CSI's Correction File?*

A. The Correction File provides an electronic means to replace all known errors for your portfolio with corrected values. It contains all recent revisions for each of the commodities, stocks, indices and funds in your custom and/or fixed portfolio. There is no charge for collecting the correction file, which is normally updated each weekday around noon. Corrections for the current day's update are never included in the correction file.

Q. *How do I collect the correction file?*

A. With your own User ID and any applicable Fixed Portfolio number in User Constants, select C) Collect History

Data from the QuickTrieve[®] main menu. When prompted to enter the file number given to you by CSI, enter 99. QuickTrieve will dial into the CSI host computer and scan your custom portfolio for matching corrections. The process will be repeated for any fixed portfolio listed in your User Constants. If there were any corrections for your portfolio(s), the FIRST one will be displayed on your screen during the transmission. This is not necessarily a complete revision list. When all corrections have been transmitted, an EOF (end of file) message is sent and the call is ended.

After most calls for the correction file, you'll be informed that no errors were found. If corrections were retrieved during the call, QuickTrieve will proceed with historical data distribution. You'll be asked if you want a (N)ormal distribution, (P)rintout or (A)SCII files. To correct CSI format and/or Metastock format files, choose (N)ormal. Answer the remaining questions about creating data files and then, when presented with the first file to distribute, press <A> to distribute (A)ll collected data.

Q. *How will I know what changes were made by the correction file?*

A. We recommend that you make a printout of the collected history file after distribution so you'll know just that. Proceed by selecting D) Distribute history data from the QuickTrieve main menu. This time, instead of selecting (N)ormal distribution, select (P)rintout. You'll get a complete listing of revisions. When the printout is complete, you may need to press your printer's form feed button to review the page.

Q. *Do I get a reward for being the first to report an error?*

A. You sure do! As an incentive for you to help keep the CSI data base clean,

we offer a reward of a \$2 credit to the first person to report an error in the current day's daily update and a \$1 credit to the first person to report an error in our historical data. There is a limit of one credit per time series per day of data.

Q. *What information should I supply when reporting a suspected error?*

A. Please include the CSI commodity or stock number, the delivery month, the date of the suspected error and the field, eg. close, volume, etc. We'll also need your User ID and instructions on

how we can reach you.

Q. *Why can't I just re-collect my daily updates to correct errors?*

A. This may work on a very limited basis, but can end up costing you money. You are allowed 26 updates during the billing cycle, which typically includes 21 trading days. Re-collecting more than a few days will result in an extra-access surcharge of 4% per day. With our extremely low error rate, chances are good that you'll be paying extra money for little or no benefit. ♦

Holiday Schedule

CSI will be closed for voice communication on Monday, May 27 for the Memorial Day holiday. U.S. exchanges will be closed, but data from other exchanges will be available as usual.

CSI Software Product Summary

Please check all that apply and complete the information box at right.

Mail or fax to CSI, 200 West Palmetto Park Road, Boca Raton, Florida 33432; Fax: (407) 392-7761; E-mail: marketing@csidata.com

- QuickRetrieve /QuickManager** for PC - To retrieve, manage & edit data (includes 1996 Alerts Calendar); New daily user \$59. QuickRetrieve QuickManager version 4.06 upgrade (for current QuickRetrieve users only): \$39; shareware demo disk \$5
- 1996 Commodity Alerts Calendar** for use with QuickRetrieve \$25
- QuickPlot /QuickStudy** for PC - Charting & analysis software (requires QT/QM) \$89
- Trade Data Manager™** - Macintosh downloader & accounting program \$59; upgrade \$49 or *FREE* with \$100 history order
- Trading System Performance Evaluator™ (TSPE)** for PC - Computes your system's capital requirements \$149
- Trader's Money Manager™** for PC - \$399 (includes TSPE); Demo disk: \$15
- TraDesk™** for PC - Traders' complete accounting system - CSI daily user \$149; Unrestricted use \$299; 30-day trial version \$22
- Seasonal Index Value Pack** for PC - Ten years of history for 33 popular commodities \$315
- Daily Updates** for PC - Starting at \$10.80 per month
- CSI Technical Journal Subscription** - \$24/Yr. - Reprints \$5/each Issues requested:
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- CSI Data Retrieval Service Information Package** - *FREE*
- Hardcopy Commodity Fact Sheets** (includes options) \$4; **Stock Fact Sheets** \$6. Visit our Internet Home Page for free on-line copies: <http://www.csidata.com>

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