

**In This Issue**

Training, Testing, Assessment and Certification of Your Market Trading System - An Official Guide to Trading System Design - Part III ..... 1

Ask Customer Service ..... 4  
(Topic: User Constants)

Product Summary ..... 5

Market Statistics Update & IPOs ..... 6, 7 & 8

Editor: Sabrina Carle  
 Publisher: Commodity Systems, Inc.  
 Layout/design: Moran Advertising, Inc.

Notice: The views and information expressed in this document reflect exclusively the opinions and experience of the author, Robert C. Pelletier. **NEITHER CSI NOR THE AUTHOR UNDERTAKE OR INTEND TO PROVIDE TAX ADVICE OR TRADING ADVICE IN ANY MARKET OR ENDORSE ANY OUTSIDE INDIVIDUAL OR FIRM. ALL RECOMMENDATIONS ARE PROVIDED FOR THEIR INFORMATIONAL VALUE ONLY.** Readers should consult competent financial advisors or outside counsel before making any trading, software purchase, or investment decision. CSI does not stand behind or endorse the products of any outside firms.

Advertisement Enclosed: We have enclosed an advertisement for The GRANDMASTER 2 Thrust Detection System offered by Windsor Books. CSI accepts advertisements to accompany our Technical Journal for the sole purpose of defraying postage costs.

Copyright © 1996 Commodity Systems, Inc. (CSI). All rights reserved.

**Training, Testing, Assessment and Certification of Your Market Trading System**

**An Official Guide to Trading System Design - Part III**

*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 November, 1994 issue. It is the last installment in a three-part series dealing with the development of a trading plan. This month's issue helps you feed, test and implement your candidate system with data, iterative training performance assessment and evaluation.*

**Synthesizing Market Movement with a Constant Time Series**

Each of the trading systems we have discussed (trend following, counter-trend following and neural networks) uses modeling techniques for system development. Modeling requires testing, and testing requires data representing market movement. An uninterrupted pricing series over a long period of time (decades) is recommended. Unfortunately, futures contracts follow a birth and death process that abbreviates the duration of any time series. Even if a given contract could trade for seven or eight years, such as in the isolated Eurodollar market, the structure of the market (its stationarity) changes significantly over time.

A stationary series is one which has a constant mean and variance. Futures market data often suffers from a lack of stationarity. This could cast a shadow on the hindsight performance derived from analysis of raw data. For this reason, we recommend a transformation be introduced that converts the data into a form that represents a synthesized constant period forward.

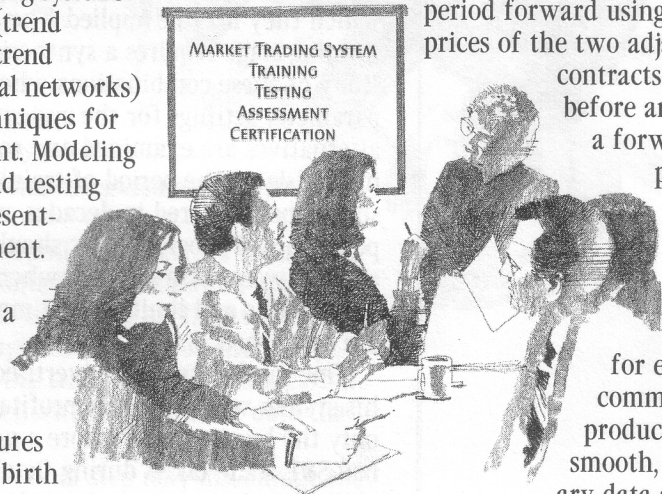
We have formulated such a series

in what we have trademarked Perpetual Contract® Data. It focuses on a time-weighted, constant period forward using the prices of the two adjacent contracts that lie before and after a forward point in time. The calculation done for each commodity produces a smooth, stationary data set

suitable for simulated analysis. There are limitations (e.g., the price never matches a single contract's value), but for system testing purposes such limitations are often far less serious than the alternatives. Markets that do not mix old and new crops are best for Perpetual Contract construction.

Other series such as back-adjusted continuous contracts can go negative as you move into the past, but they may be viable in many situations. Nearest futures contracts suffer from price discontinuities when contracts switch from nearest to next nearest. Cash data is another alternative, but

*(continued on Page 2)*



## Training, Testing, Assessment ...

(continued from page 1)

---

***“Knowing the rare experiences of the past is half the effort of preparing for tomorrow.”***

---

cash prices could be a poor proxy for futures prices. We suggest testing your system with as much continuous contract data as possible for the commodities you wish to trade. We urge our readers to understand the limitations of each approach before taking the giant step into the trading arena.

### **System Training**

Once you have gathered data for analysis, you are ready to begin the system training stage. If you have followed our recommendations so far, you probably have several system alternatives and approaches in mind plus several candidate markets on which they may be applied. The training stage requires a synthesis study of these combinations where parameter settings for the system alternatives are examined and refined in hindsight. The period of training should be measured in decades, where possible, and program logic should adopt a worst-case analysis where market fills and limit market moves are concerned.

One market analyst advertised that his system would be very profitable if only the buyer would ignore a very bad S&P trade taken during October 1987. In technical analysis, excluding an unfortunate historical event because it appears to be rare is an invitation to suffer the effects of a more serious tragedy in the future. Knowing the rare experiences of the past is half the effort of preparing for tomorrow.

Combinations of parameter content and their settings should be exhaustive. The analyst should attempt to find a solution not sensitive to small changes in assigned parameter settings. This iterative procedure, based on years and years of historical data, may take some time on your computer.

Each iteration of the training exercise will bear some quantifiable

result. The usual approach taken by developers is to compute the aggregate profit for the period and take account of the trading frequency which can lead to average profits, average losses, etc. Aggregate profit is most definitely not a good measure of performance for the system you are considering. It is always much better to work with ratios than absolutes or aggregates when measuring performance.

The ideal ratio is difficult to determine because it is based on a random compilation of profits and losses over time. Profits and losses for a given system occur in a particular sequence, but a given sequence will only represent one sample taken from an infinite set. If trades are independent, a sample drawn from the universe of trades could be repeated in a different order, producing a vastly different funding requirement for the same system.

So what should be the measure of performance that will accurately quantify the merits of one approach over another during the training phase? An answer has to do with the capital required to trade the system with a predetermined level of maximum error or risk. We suggest using a fixed probability of success coupled with the net profit over the training period. The capital requirement can be computed with a Monte Carlo simulation like that performed in CSI's Trading System Performance Evaluator™ (TSPE). A substitute approach could probably be developed by observing drawdown over time.

Don't forget that in synthesizing trading system design we are dealing with a random process. Each simulated trading series could easily be repeated in a scenario far worse than that produced by the sequence of trades observed for a given single training session iteration. We seek to find a workable norm that factors unfortunate strings of losses into our expected

results. Only then will we know how to find a viable approach.

Form a ratio of the annualized aggregate training period profit to three times the standard deviation of individual profits and losses. This approach becomes a modified Sharpe Ratio. It will overcome nearly all of the objections of the Sharpe Ratio as a performance measurement tool. The standard deviation would be calculated against the average profit. This approach would factor the annualized aggregate performance as the numerator of our ratio and use the three sigma limit against average profits as an approximation of required capital for the denominator. This is only a suggestion and more study is invited before accepting this as an accurate assessment of required capital.

When calculating standard deviations in the modified Sharpe ratio, be sure to use trade-by-trade profits and losses for each sample. Do not partition the data into N equal time periods of weeks, months or quarters and compute an N sample standard error, as suggested by one popular author. Doing so will produce a false report. A sample is not the month-by-month change in equity. That would falsely imply smooth, well-behaved additions or deductions to your synthesized trading account, which you know are not likely.

### **System Testing**

Once the training stage is complete, the work must be tested. There are two alternatives to the testing effort: 1) Choose an independent period of the market and observe how you would have fared, or 2) Run your profit and loss results together with your parameter consumption count through an evaluation program like TSPE. This will let you see how much capital is required and show the probability that you will stay solvent over the long run.

The independent testing period is a

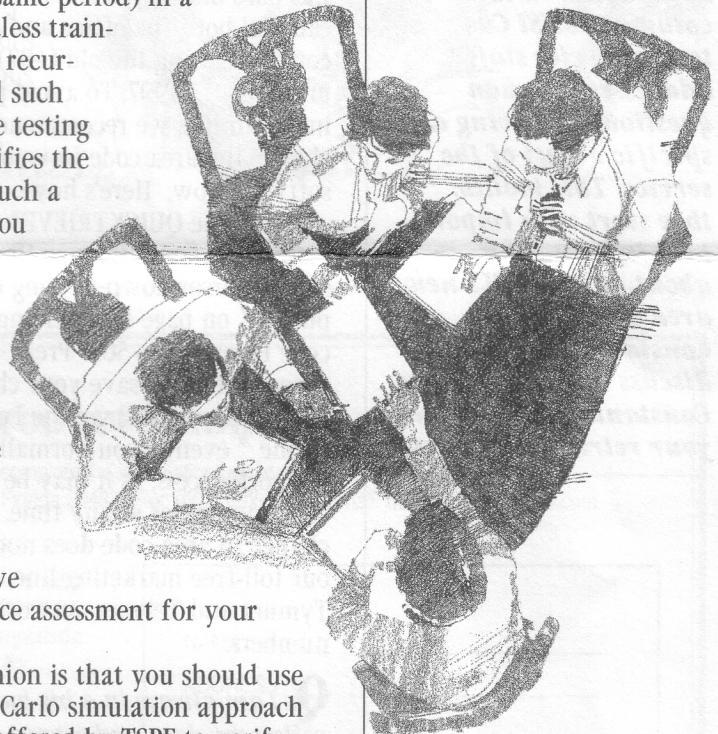
good idea on the surface, but this approach becomes flawed when you have a rejection of your approach. Rejection leads to more training (over the same period) in a nearly endless training-testing recurrence until such time as the testing period verifies the result. In such a scenario, you have inadvertently made the testing period part of the training period, forcing an inconclusive performance assessment for your work.

My opinion is that you should use the Monte Carlo simulation approach such as is offered by TSPE to verify your system design. You then may make the training and testing period representative of all of the data that you have.

This final step may discourage the use of some markets and/or systems, while encouraging the addition of markets and systems that you may have thought unworthy. If your solution stands up to the test, then I believe you have done the proper job to begin paper testing your trading system in real time.

Paper trading can get sophisticated too. Consider Audit Track (561) 393-3876 - Gene Donney, a Boca Raton based neighbor of ours. You can paper trade your approach with them in real time without risking a cent of capital. They supply audited account fills complete with commission and slippage for a monthly fee.

*(continued on Page 5)*



## Ask Customer Service

*Each month in this column the CSI Customer Service staff addresses common questions involving a specific aspect of the service. This month, they start with important information about putting CSI's new area code in User Constants and go on to discuss other ways User Constants can improve your retrieval sessions.*

**Q.** *I understand Boca Raton, Florida has a new area code. What do I need to do to accommodate the change?*

**A.** CSI's new area code is 561, but you can dial both the office and the host computer using the old (407) area code until May 13, 1997. To avoid problems in the future, we recommend that you change the area code in your CSI software now. Here's how:

From the QUICKTRIEVE® main menu, select <H> Change User Constants. Cursor down to Long dist phone # on page 1 and change the area code from 407 to 561. Press <Esc>, then <Enter> to save your changes.

You should change the Long dist phone # even if you normally use network access, as it may be used as a backup number at any time. The change in area code does not affect our toll-free marketing line, nor the Tymnet and Telenet network access numbers.

**Q.** *I am always in a big hurry to collect my data and get out of the office. Is there a way to speed up the data collection and distribution process?*

**A.** If you are dialing direct at 14,400 baud, there isn't much you can do to speed up collection. It is already very fast. Data distribution takes only a few seconds as well, but delays in answering screen prompts can add to the overall time invested. Here are some steps you can take to speed that procedure:

1) Go through User Constants and substitute (Y)es or (N)o answers in place of (A)sk for those entries that are the same every time. For example, if you always want to create MetaStock data files, change your response for Create MS Daily to Y. If you aren't interested in a daily status report, change the Data Listing entry to N. Omitting these daily screen

prompts will save you time with each retrieval session.

2) If you like to print a daily report of your update (a data listing), you can modify it to take less time. Page 4 of User Constants gives you options such as printing a summary only, limiting or omitting Alert Calendar messages, including just the last day when multiple days are collected, etc. Look these over to see which can save you time while still meeting your needs.

3) If you do not analyze data with QUICKPLOT®, using the Exit to Dos feature on page 2 of User Constants can save you time. It forces an exit of QUICKTRIEVE immediately after distribution. This can save you one keystroke or many, depending on what batch files you may incorporate.

4) Consider using Autocall on page 2 of User Constants, which automates retrieval and distribution entirely.

**Q.** *Can Change User Constants help me automate charting with QUICKPLOT?*

**A.** It can pre-set some charting constants that will help make charts the way you want them the first time, thus saving you the effort of re-configuring them. For example, if you want to see no more than the last 100 days of any chart, you could change the Max # Days entry from 500 to 100. If you prefer to view charts without volume or open interest, you could change the Vol Opt (first) and Vol Opt (second) entries to N. Other charting options such as whether data will be inverted and whether you should be asked for dates can also be set on pages 6 and 7 of User Constants.

To fully automate your charting sessions, we recommend using QUICKTRIEVE AUTOMATION to record and play back a macro that you design, as described in the QUICKTRIEVE manual. ♦

## Training, Testing, Assessment ...

(continued from page 3)

### Implementing Your Plan

Before investing a dime, you must truly understand (not just pay lip service to) the fact that all trading system approaches bear a level of real and present risk. No system can be expected to perform in the same way a hindsight simulation might suggest, but we have presented some safeguards that can reduce the damages. It

must be part of your overall plan to strive for the best results, while being prepared for the worst.

Best wishes for prosperous trading. ♦

*Bob Pelletier*



## 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: (561) 392-7761; E-mail: marketing@csidata.com

- QuickTrieve®/QuickManager®** for PC - To retrieve, manage & edit data (includes 1996 Alerts Calendar and on-line manual); New daily user \$59. QuickTrieve/QuickManager version 4.06 upgrade (for current QT users only): \$39; shareware demo disk \$5
- QuickTrieve/QuickManager Printed Manual** \$14.95
- 1996 Commodity Alerts Calendar** for use with QuickTrieve \$25
- QuickPlot®/QuickStudy®** for PC - Charting & analysis software (requires QT/QM) \$89
- 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: \_\_\_\_\_
- CSI Mailing List** - \$200/1,000 names (CSI users omitted)
- 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>

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_  
\_\_\_\_\_

DAY PHONE (\_\_\_\_) \_\_\_\_\_

USER ID# \_\_\_\_\_

#### DISK PREFERENCE

- 5.25"/360K     5.25"/1.2 MB (HIGH DENSITY)  
 3.5"/720K     3.5"/1.44 MB (HIGH DENSITY)

#### METHOD OF PAYMENT (PREPAYMENT REQUIRED)

- CHECK     MASTERCARD     VISA  
 DISCOVER     AMERICAN EXPRESS

AMOUNT ENCLOSED \$ \_\_\_\_\_

CARD # \_\_\_\_\_

EXP. DATE \_\_\_\_\_

SIGNATURE \_\_\_\_\_

6/96

Please add \$34 per software package for overseas shipping.  
All prices subject to change without notice.