

# CSI NEWS JOURNAL

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## SYSTEM PERFORMANCE EVALUATOR™

Last month we tried to convince readers on the importance of assessing system performance before assuming risk, or before attempting to trade with the new system that may have been purchased. We suggested that an evaluation of the distribution of the string of profits and losses that were produced from either a simulated or an actual record of trading experience could become the basis for determining whether the given system or record was produced by luck or skill.

If your approach is characterized as a lucky result, then too much capital generally would be required to produce winning performance in practice. If your approach reflects substantial substance, and skill is determined to be behind it, then you can move forward freely knowing that risk levels will be under control. Neither paper trading nor actual trading success is a substitute for this tool.

To determine the skill level of your performance record, the following inputs are required:

1) your capital stake, 2) the margin cost, 3) the average dollar slippage per trade, 4) the overall profit goal, and 5) your actual or simulated trade-by-trade experience in profits and losses. Each trade-by-trade profit or loss in the series is assumed to be independent of all others. You could add other parameters, but these are the most vital and will help to answer the most important questions.

The analytical approach that we promised to reveal last month involves the Operations Research tool of Monte Carlo Simulation. I personally used this important tool at General Electric with the intent of discovering weak links

## WHAT'S NEWS

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in electronic circuitry design, maintenance policy, the impact of levels of personnel utilization, operational procedures, and total costs.

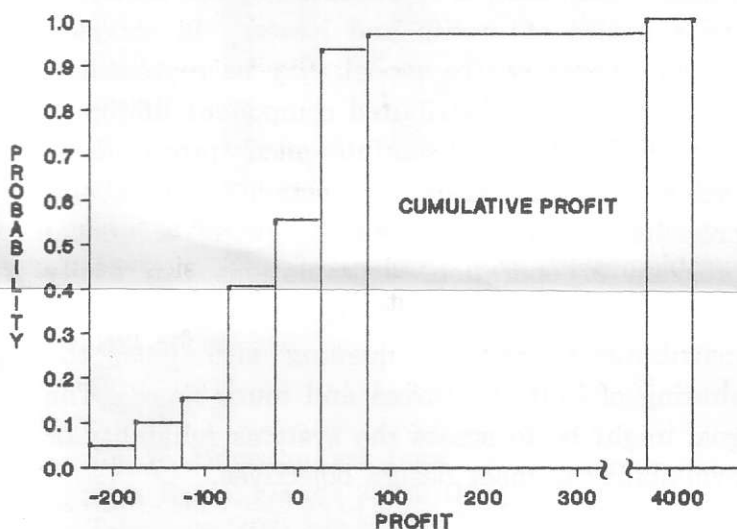
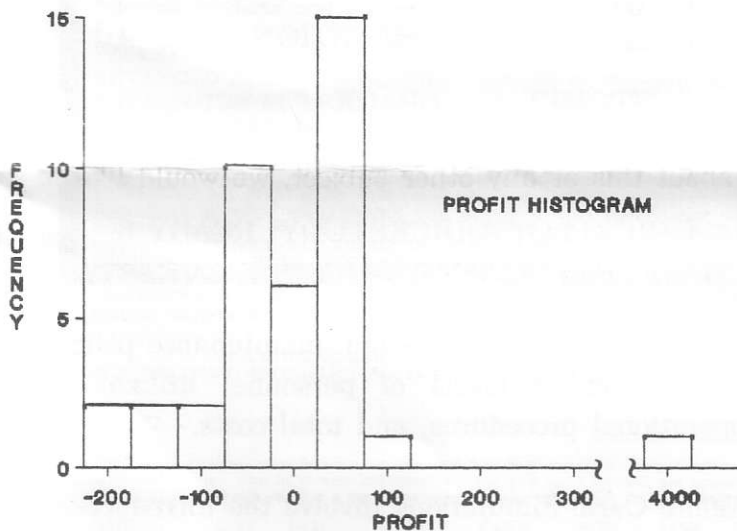
Monte Carlo Simulations involve the introduction of randomness to an appropriate model. In the markets the model is represented by the trade-by-trade record of profits and losses. In complex systems analysis, the model may be represented by exponentially distributed component lifetimes, normally distributed maintenance, procurement cycles, and an intricate collection of rules and procedures that are characteristic of a typical program of operation. Simulations can easily incorporate many different probability distributions, complex queuing situations, the sharing of finite resources and much more. The goal might be to assess the systems reliability or availability to meet design objectives.

In market analysis, it is very important to answer probability questions and determine capital requirements. The answers will lead to an evaluation of your system's skill level, and an accurate assessment of the costs of trading a particular approach or methodology.

Last month we showed how the distribution of profits and losses are important to success. We

illustrated a histogram of P & L density for a rather extreme example which showed one very large profit that turned the overall result into a winner.

A Monte Carlo Simulation would require integrating the histogram of trade-by-trade profits and losses into a probability distribution function as follows:



Random samples based on uniform random numbers are drawn from the distribution function to identify trade-by-trade progress. The capital requirement is drawn down or inflated on a simulated basis as trades are selected randomly. The dollar input goal is compared against the performance over time to establish the overall frequency of successful vs. unsuccessful trade

sequences. Whenever margin capital is exhausted in a given sample trial, the simulation of the trading process terminates with an unsuccessful outcome. When the dollar goal is reached for a given trial, a successful sample is logged.

Slippage (the average dollar loss per executed trade) is also randomized numerically based on samples drawn from an exponential distribution. This is appropriate because slow-moving, heavily capitalized markets tend to return better market fills than fast moving markets which are thinly traded. The systems design also requires pessimistic dollar outcome corrections for smaller samples. The P & L histogram above suffers in reliability as the sample size decreases. Corrections could also be made to correct for the quantity of process control parameters that may have produced exaggerated profits or limited losses than that which could easily be replicated by chance.

In standing with our policy to educate our readers, we have given most of the necessary ideas and methods to perform your own analysis. However, since the concept, not the mechanics, is a bit difficult to comprehend we are deviating slightly from our usual policy by offering to provide our readers, at basically our costs, some software to produce the performance evaluation.

We have developed a stand alone Monte Carlo Simulation model that will evaluate your newly purchased system. As it operates on your IBM PC or clone, it will tell you what your chances are of consistently repeating the given performance record with a randomly selected P & L string that could have been produced through actual trading or hindsight analysis. It will also show you how your chances of winning will grow as you introduce additional risk capital.

Every trader should apply this tool to his trading system before accepting as accurate, advertised levels of risk. If you have discovered a viable approach, this model will give you the courage to

move forward with uninhibited purpose. On the other hand, if you have not discovered something close to the Holy Grail, this model will help you to preserve your resources until a better approach comes along.

If you have two or more candidate trading alternatives where each of them can be represented by a string of profits and losses, then the CSI System Performance Evaluator can be used to rank them according to their output skill level. Skill level in this model is defined as the average probability that your input dollar goal or your expected attained profit is reached before your capital is exhausted. This is something everyone needs to know before beginning to trade.

In my experience with analysis and simulation at General Electric, I observed, controlled, or managed simulation exercises that cost millions of dollars. Some of these efforts were very fruitful and significantly improved the ultimate design. Other efforts were so complex that delays in building the model forced the cancellation of the analysis efforts.

I have put this experience to work in an effort to answer the question posed above. We plan to offer the Systems Performance Evaluator for our cost of development plus postage and handling. This product is priced at \$199, but all orders received by December 16th will benefit from a 10% courtesy discount. Orders will be filled as they are received, and all version 1.0 purchasers will receive the next major update at no charge. Every package will come complete with a preliminary manual and installation kit. At the FIA show in Chicago last month, we observed a kit for testing system trading software that cost \$2900. Although our package may not be as elaborate, we believe it will answer the questions most important to your success.

If you are contemplating the purchase of a systematic procedure for trading or you plan to entrust your hard earned funds with a trading

advisor or pool operator, this Systems Performance Evaluator is a mandatory token investment. Ask your systems developer or trading advisor for a record of profits and losses over time and, before you trade, pass them through the SPE simulation. You either can rank various approaches by skill level or you can get a skill index which will reveal your chances of success for a given approach. In addition, you can verify whether the recommended trading capital will be adequate to produce the desired result.

If any user has any comments or suggestions about this or any other subject, we would like to hear from you.

### CAPITAL GAINS - WHO BENEFITS?

When capital gains were first introduced into the U.S. tax code many decades ago, the political and economic reasoning was -- hold common stock equity positions or real estate for a minimum period of say, six months, and the government will give you a reduced tax rate below your ordinary rate for the morality of buying and holding a share in America. Only long positions qualified and the philosophy made sense.

The same idea was extended to the futures market, and again only long positions qualified for the capital gain advantage. I've always had a problem with this mechanical extension of the capital gains interpretation of the tax code because of the morality issue. Except for T-Bonds and Bills where long positions tend to push interest rate yields down, long positions in other commodities such as agricultural products, or metals, for example, tend to render these markets less available to the consumer making it more difficult for him to afford the finished products. Perhaps allowing capital gains on only short positions would be a more appropriate alternative. This would be more in synchrony with the natural tendency for commodities to be priced inversely to the securities markets. The current approach represents a conflicting policy that is difficult to rationalize.

An example that violates reason for the proposed law is the current petroleum crisis. Isn't the government, in effect, proposing to reward those who successfully drive up oil prices and simultaneously push the nation into a serious recession? The system (laws) should work by rewarding those who accept the more dangerous commodity short position risks, and drive prices downward.

If you have an occasion to speak with your congressman or senator, it would be interesting to see if any of them had ever given the full blown current approach or concept of capital gains any thought.

### CSI DATA - HOW IS IT INTERPRETED?

OPENING PRICES - All of CSI opening prices represent the mid opening range average. Some services do not offer opening prices and most others give the first price of the day. Stock data services often omit the opening price in their reports. The opening range average is the most appropriate number to report because it will be most representative of the fill you would have received whether you were a buyer or a seller. If a data service always publishes the low end of the opening range then all simulated buy orders would suggest you had an advantage even though the opposite is more likely. Another data service may be helping their customers fool themselves into believing they have a better solution for long trades than would be possible. Even though we do not agree with our competitors who compute their opens differently, we do not consider their policy to be the commission of an error.

HIGH OR LOW PRICE REPORTS - CSI reports the highest price actually traded in the high field and the lowest actual trade in the low field. We do not show bids or asks in the absence of trading. The only exception to this involves exchange posted settlements when no trading was reported. Under these conditions the open, high and low fields will hold the exchange posted

settlement price. This is true regardless of a commodities activity or lack of it. Again, where competitors take a different approach we do not consider their policy to be in error.

SETTLEMENT PRICES - CSI reports only official settlement prices in the closing price field with every commodity. Any deviation in this approach is considered wrong.

CURRENT DAY CASH PRICES - Where most services report prior day cash prices, CSI reports current day cash prices for nearly all of the commodities followed. A competitors failure to report cash prices on time is also not considered to be the commission of an error.

ESTIMATED VOLUME - CSI reports the estimated volume for today and the official volume and open interest for the prior trading day. There may be services which offer today's estimated volume, but we don't know of any other than CSI.

VOLUME AND OPEN INTEREST - CSI reports yesterday's official volume and open interest today. The figures supplied include volume and open interest for all contracts both active and inactive including switching months. Competitive services have a great deal of trouble with these fields. It is very rare to catch CSI making an error in volume or open interest. We consider any total volume entry reported by a competitor which does not include a summation of all contracts to be an error.

We chose to clarify our procedure in reporting the above information because a competitor has been printing untruths and false assumptions about our reporting policy to camouflage their inability to deliver accurate data. CSI commits about one error per day. This competitor in question commits fifteen to 50 times as many each day according to our records that are verified with either published or recorded exchange information.

"Data integrity outweighs all other considerations by such a heavy factor that it's the one thing that makes or breaks a product or a player in the marketplace."

Martin Marion, Wall Street Computer Review

## CUSTOMER FEEDBACK ON NEWS JOURNAL'S PERPETUAL CONTRACT® DISCUSSION

We received a call from a longtime customer concerning our August feature article. A customer pointed out that he had a problem using perpetual contracts back in 1986 when he was a user of them. I was happy to receive his comments because he brought up a very good point.

One of the assumptions that is made concerning perpetual data is that the forward contracts, on which the calculations are based, are moving generally in the same direction. In at least one situation for this customer, the perpetual contract followed was focusing on a point in time between the old and new crops of cotton. One contract was going up in price while the other was going down. When the adjacent actual contracts to the perpetual's forward period are moving in opposite directions, the more distant contract would have been the better choice for actual trading. In this event the perpetual contract would eventually center on the new crop alternative.

This customer's trading algorithm reportedly produced the opposite signal from the direction of the contract he was following. I was happy to receive his input and hope the above analysis will be helpful to potential users of our perpetual data.

## VENDOR OF THE MONTH

Our opportunity to be October Vendor of the Month at the Chicago Mercantile Exchange has been gratifying. Thanks to Bruce Frost of the Exchange we were able to make new friends plus renew many older relationships. It was good to meet Mr. Franklin Finch, a long time user, who came down from Harvard, IL to meet with us.

Best wishes for prosperous trading,

*Bob Pelletier*

## BE PREPARED FOR THE NEW YEAR

1991 will be here before you know it and we want you to start it off right. All users of continuous data must prepare their files to update through the coming year. Continuous data files include stocks, indexes, cash series, nearest futures, Perpetual Contract and Perpetual Index data.

If you use any of these and your files end with December, 1990, see the "Ask Customer Service" column for easy instructions to extend them into 1991. Don't be left in a lurch on January 2nd.

## HOLIDAY CLOSURE

CSI will be closed for voice communication on Thursday, November 22 for the Thanksgiving holiday. U.S. exchanges will be closed that day, but data from other exchanges will be available.

## PROGRAMMING NOTES:

We have pretty much completed work on the new QuickPlot/QuickStudy program. The system is now undergoing testing and we expect to release it in mid-December. QuickPlot/QuickStudy version 4.01 has been a long time coming, but we are quite pleased with the results. We'd like to share some QuickPlot/QuickStudy capabilities with you here.

## SCREEN PRESENTATION

Multiple windows allow you to plot many different time series and technical indicators on the screen at once. You can join and split windows to control their number and size.

QuickPlot lets you ZOOM IN on special areas of interest, or ZOOM a single window to fill the screen.

QuickPlot supports VGA, EGA, MCGA, CGA and Hercules Monochrome graphics.

Data overlap and expansion techniques allow you to plot anywhere from 2 to 500 intervals at once.

You can design your own custom charts with QuickPlot. The program lets you select the color and/or line style for each data field. You can decide if any window will include the date and/or time scale. You may choose if horizontal or vertical grids shall be used and how far apart the dots will be. These choices can be used for the current charting session only or may be saved as the default presentation.

### PRINTED CHARTS

Size and orientation of printed charts can be controlled by the user. The program supports over 190 printers, including several laser models.

QuickPlot can save charts to files for printing after the charting session.

### TECHNICAL ANALYSIS

QuickPlot/QuickStudy's technical indicators include: *Average of two or more fields, Call/Put Ratio, Commodity Channel Index, CSI Stop™, CSI Trend™, Detrend, Directional Movement Index, Herrick Payoff Index, Momentum, Money Flow Index, Moving Average, Moving Average Convergence/Divergence, Non-seasonal Volume, On Balance Volume, Probable Direction Index™, Relative Strength Index, Single-Field Detrend, Spread/Ratio, Stochastics, Trend lines, Williams %R, Williams Accumulation/ Distribution and Intermarket Relative Movement™.*

You select the field for calculating each technical indicator. This allows you to produce a technical indicator based on the output from another technical indicator.

### COMPATIBILITY

This program is fully compatible with QuickTrieve® version 4.0 and 4.01. This means

you can use the **QuickTrieve Automation** feature for unattended or automated charting sessions. You can also plot data stored in different subdirectories.

## VERSION 4.0 QUICKPLOT/QUICKSTUDY TO BE RELEASED IN DECEMBER

So that we can better plan the printing quantity of this greatly improved product we are offering an advance payment discount of 10%. When this new program is ready for release in mid December, prepaying customers will be serviced on a first come first served basis.

You will be impressed by the multiwindowing capability, sharp easy-to-read graphics, a collection of old proven studies, and some new and improved original studies. We will need your advance payment by December 16, 1990 to qualify for the 10% discount. Please see attached order form.

### ASK CUSTOMER SERVICE:

Each month in this column, the Customer Service Staff addresses a specific aspect of the CSI service that is sometimes overlooked or misunderstood. This month, Karen, Ron, Rudy, Susan and Tami will answer some common questions about QuickTrieve's *Move/Split a Data File (Move a contract file on QuickTrieve version 3.1)*. This is selection H on the QuickManager menu.

**Q. *The Move/Split a Data File feature seems to have several uses. What are they?***

**A.** This single feature can *a) condense daily prices into weekly or monthly files; b) move data from one file, disk or directory to another; c) adjust stocks and mutual funds for splits, dividends and distributions.*

**Q. *1991 is fast approaching and I'm concerned about my stock files. They all***

*have ending dates of December 31, 1990. How can I continue to update my stocks next year?*

- A. This question applies to all continuous data files including indexes, cash, nearest futures and Perpetual Contract data. The Move/Split a data file feature will help you with this.

Select <H> from the QuickManager Menu. A list of your files will be displayed. Press the letter designator of each continuous file ending in 1990. When finished, press <F3>\*.

You will be asked if you want to create files for all items or just those not existing on your target path. Say All. You will be shown each selected file and will be asked if you want to change the beginning or ending date of each. Answer Yes. Change the ending year for each item to 91.

When finished, check your new files to see that the data was transferred properly. If the new files are O.K., you'll probably want to delete the original files using <B> Delete data file from disk.

You can do this any time before the end of December, as long as your new files are ready by January 2, 1991.

\*The <F3> feature is included in version 4 QuickTrieve only. Users of prior releases must move each file individually.

*Q. How do I convert daily prices into weekly or monthly files?*

- A. This is a simple process. Select <H> Move/split a data file from the QuickManager Menu. Press <F1> to move all your daily files into weekly and/or monthly files. QuickTrieve will automatically create your new weekly and monthly files. You can use this utility once a week to keep these files

current.

*Q. Will you please explain QuickTrieve's stock split routine?*

- A. When a stock splits, the price normally falls in proportion to the split ratio. Your value is still the same, but the price is much lower. QuickTrieve's stock split routine divides your historical data prices by the same ratio so the drop in price is not apparent. This feature can be used for reverse splits as well.

To use this feature, select <H> from the QuickManager Menu. Select the stock you wish to adjust and press <F3>\*. Press <F2> to automatically create a file exactly like the original. This new file will be the destination for your adjusted data. It gives you a place to store the data without disturbing the original file.

Begin the move/split routine again. Select the same stock you wish to adjust and press <F3>. This time, select the new file you just autocreated as the destination. Use the default start date for the move, but enter the last business day before the split as the ending date. You will be asked if you want to adjust the data for a stock split. Answer Yes. You will then be asked a few questions regarding the type of split and the split ratio. These questions make it possible to adjust for a normal split or a distribution and offer special handling of mutual fund data.

When finished, you may want to move the original data to another disk or directory to preserve the raw prices.

\*The <F3> feature is included in version 4 QuickTrieve only. It facilitates the processing of multiple contracts. Since the split routine works for individual files only, users of earlier versions simply proceed as directed above without pressing <F3>.