

# CSI NEWS JOURNAL

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## A CONTINUATION OF SABRINA CARLE'S TALK ON TECHNICAL TRADING

Last month we focused on data products. This month we will emphasize CSI's currently available technical software and future plans for new technical trading software. We shall begin with our Tech Analysis Program:

### IV Tech Analysis

The first software piece I want to tell you about is a humble little program called Tech Analysis. This is probably one of the oldest technical programs on the market today. It is a simple channel breakout system that uses the most recent highest high and lowest low for a particular market to uncover trading opportunities. Whenever the current price breaks out of the price channel, the program generates a trading recommendation. Every day you exercise this program it prints a summary of previous trades, current market positions and total equity.

This system works extremely well with currencies and other markets that tend to trend for long periods of time. With its simple, straight forward approach, Tech Analysis simply cannot miss a major market move. Occasionally it may be prone to whipsaws and it does not include protective stops, but it is so accurate on the big moves that these problems are of minor significance.

One important feature of Tech Analysis is the fact that it is fully disclosed. It is provided in source code on the disk so that programmers may modify it in any way they like. This study was originally provided to give users a working example of how to write and deal with software that could provide market entry and exit signals. Although it is still included in CSI's

basic software package, Tech Analysis is often overlooked by traders rushing to analyze QUICKPLOT's graphic display. Those who have taken the time to understand and use Tech Analysis have found it well worth the effort.

Everything I have told you about CSI services, inclusive of last month's News Journal contribution, is available with our basic general software and data base services. I won't spend any time on the routine graphics software available with the QUICKTRIEVE software and I won't tell you about the RSI, moving average, oscillator and trendline software available thereon because of the time restriction for my talk. What I will tell you about, however requires our more in-depth technical analysis program called QUICKSTUDY.

QUICKSTUDY programs are for those who like to make money (or possibly lose it) at a faster pace than the indexing method discussed last month and Tech Analysis will allow. First, lets consider PDI:

#### V PDI

The QUICKSTUDY disk contains 19 different technical studies, only a few of which are our own proprietary formulas. The most important of these are the PROBABLE DIRECTION INDEX, CSI STOP and CSI TREND. These three programs were developed by Bob Pelletier using principles he had noted but had not fully applied in his years of analyzing commodity markets. They are intended to be used together for maximum insight and safety.

The Probable Direction Index (PDI for short) is the heart of this three-pronged trading system. It is used to find market entry and exit points and to determine the direction of your trades.

PDI is different from most technical studies in that it is a statistical study. It averages probabilities in the same way a moving average study averages prices to evaluate market movements. This makes it much more reactive to subtle changes in market direction than moving average or stochastic analysis would be because the transformation of price into a probability tends to amplify the effects.

To give you an example of why this is true, assume that commodity X's price has been hovering at around \$1.00 per unit. If the price were to suddenly jump to \$1.02, we would have a price change of 2%, which could have a very small effect on even a short-term moving average.

With PDI, a sudden but very small increase in price has a dramatic effect on the probability reading. You see, the PDI analysis process assigns high probability values near to 1 for significantly rising markets, low readings close to 0 for falling markets and readings close to .5 for even markets. Small price changes within the range of the recent past would equate to an even market with a probability reading close to .5. A two cent move like that suggested for commodity X above could easily be rated as highly significant and given a probability value near 1. In this example we have a 100% increase in the probability value of price as it rises from .5 to 1 where we had just a 2% increase in the actual price. The probability averaging process translates into a more sensitive indication giving a far more responsive result.

We assign similar probability values to volume and open interest also, but we modify volume to remove the effects of open interest growth before assigning it a probability value. This is done so that we don't have two highly correlated values acting as independent variables.

The price probability is combined with probability values for volume and open interest to produce an index value for the current day. PDI often produces signals three to five days before a stochastic or moving average approach that is based solely on price.

Another way that PDI is different from most of the technical studies available today is in the adaptive way it changes the weighting of the three variables: price; volume and open interest.

The system keeps score of whether the price for a given day was predicted by any one of these three combinations: PRICE ALONE; PRICE + VOLUME; and PRICE + OPEN INTEREST. The algorithm used gradually increases and decreases the weighting factor of these

relative "independent" variables based on their predictability performance. The system will all but throw away a given variable if it is found to be totally random in a particular market. This would happen if day after day one variable proved unpredictable, and day after day the PDI algorithm's sequential analysis process reduced the weighting a little more. That is why, up to a limit, the more information (data) PDI has to work with, the more responsive the index will become.

The horizontal lines represent "significance thresholds" which are guidelines set by the user to help in the timing of trades. I selected the position of these lines when I made the chart. You simply select the percentage up from the bottom and down from the top at which you want both lines to be placed.

There are two ways you can trade with PDI, the first of which is favored by Mr. Pelletier. This is a simple method of reading PDI for what it is - the PROBABLE DIRECTION OF THE MARKET.

The principle is simple: when index values are higher than normal, prices will tend to rise; when they are lower than normal, prices tend to fall. By NORMAL I do not mean the 50% line on the chart, but the range at which PDI values appear to be the most congested.

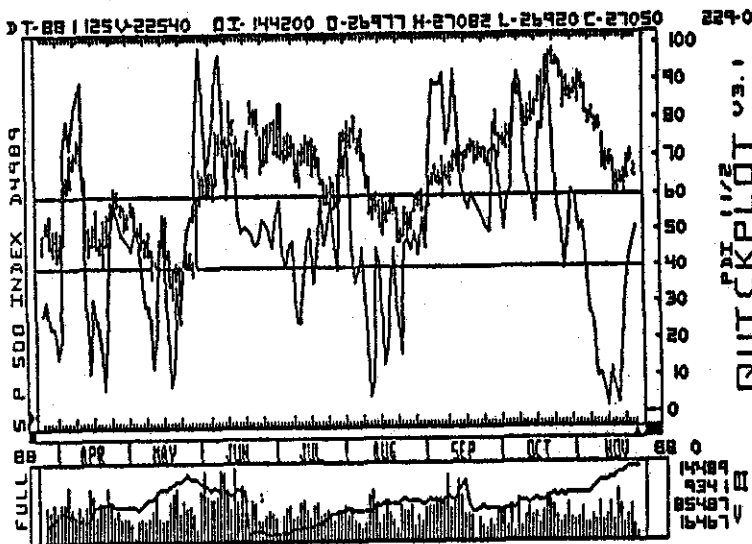
Looking at the above chart, we can see that the most common readings seem to be in the 40 to 60 range. That is why I placed my significance thresholds at these levels. To use these thresholds as trading guidelines, one would take long positions when the index rises above 60 and short positions when the index falls below 40.

This is so simple and straightforward that some people will not use it. In fact, Bob tried to improve on it by adding profit calculations and trading signals to later versions that track overbought/oversold (OB/OS) scenarios, but this is the version he believes is the best and this is the preferred method for trading with PDI.

There is a second way to use PDI that has some definite advantages over many trading systems, but is considerably riskier than the other methods I've shown you. This involves using PDI as an OB/OS indicator.

The silver chart shown below is an excellent example of a commodity that is going in no particular direction. It has not recently been involved in any major trends. Fluctuating interest rates and a generally uncertain economy may be the reason for an absence of a purposeful new direction. This is the type of market that lends itself to OB/OS analysis.

What Bob wanted to avoid in creating PDI was developing a tool that had no hope of being improved in the field. That's why this program has subtle ways of changing its own formula so that it will more readily adapt to the market on which it will be applied.

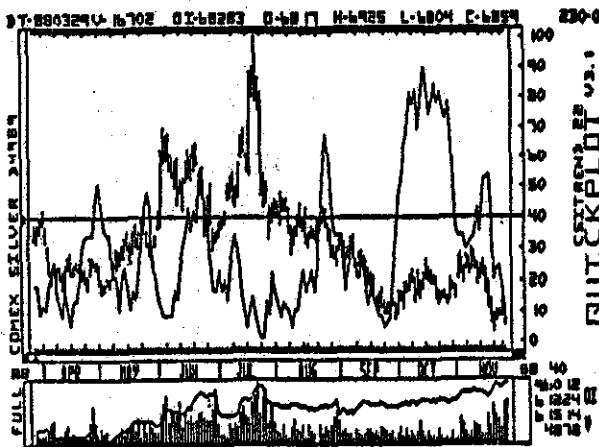
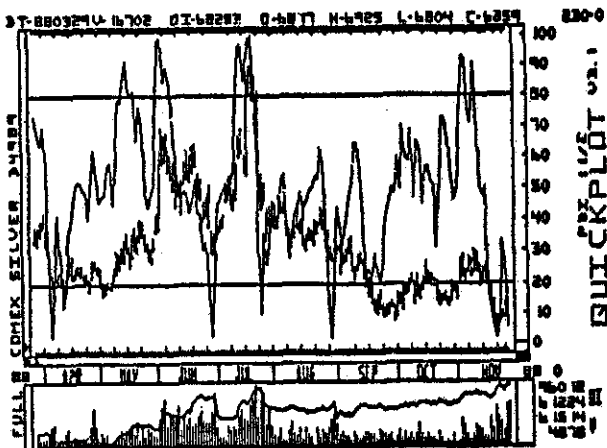


THE ABOVE IS AN EXAMPLE OF A PDI CHART. It is based on a daily file of PERPETUAL CONTRACT DATA for the S&P 500.

There are three key features of a basic PDI chart with which you should become familiar.

First, notice the bar chart with volume and open interest. This is just a standard chart made by QUICKPLOT.

The fluctuating line you see superimposed on the chart is the Probable Direction Index itself. Its basic shape is determined by price, volume and open interest relationships with additional help based on user input.



You can see that I have placed my significance thresholds near the top and bottom edges of the chart because I want to catch only extreme peaks and troughs in the index. A penetration of either significance threshold followed by an abrupt change in index direction is often an early tip off that the market will turn around in a big way. Please notice the prevailing tendency for the index to lead the market up or down as the case may be.

A possible trading signal in the OB/OS scenario would be a combination of the penetration of the threshold and the spike in the index. Sometimes taking these signals means actually bucking a price trend. Yes, I said BUCKING the TREND - which we all know can be pretty dangerous stuff. Sometimes the rewards are worth it; sometimes they are not. To help you decide if you want to take the risk, we strongly recommend using PDI's two sister studies, CSI TREND and CSI STOP.

VI CSI-TREND

CSI-TREND is a statistical study which uses the CHI-squared statistical technique to measure market randomness. It tells you if recent price activity has been trending or if there have been no major trends. Please note that this only measures past randomness, it does not try to predict the degree of randomness in the future.

This study is sometimes useful in the overbought/oversold situation we saw for silver. When you see the PDI readings hovering at the top, or near the bottom, you may want to know if the trend is still strong before initiating a trade against it.

The above is a chart of CSI TREND. The scale at the right tells us the degree of randomness in the market. Very low values, around the 5 or 10 range indicate a market that has very little randomness - what we would call a trending market. In this case, we find several peaks around the 40 and 45 percent line which indicate a greater degree of randomness than normal. The one wide spike around the 90th percentile indicates that (using the statistician's jargon) we do not have sufficient evidence to dispute the hypothesis that the market is random.

To apply this to trading, you must first realize what the chart tells you. A very low reading (indicating a tendency toward a trending market) means that upward price moves have generally led to more upward price moves and downward price moves have generally led to more downward price moves.

Before bucking what appears to have been a strongly trending market, and acting on such a signal, it might be reassuring to find some randomness coming into the market. This is not always going to happen because you can have an uptrend quickly turning to a downtrend without reversing the randomness indication.

CSI TREND may be more useful when used with the first PDI trading method I showed you, to confirm that the upward or downward momentum indicated by PDI is not becoming a random market. The sudden emergence of apparent randomness may help you decide to scalp the market and take your profits.

Whichever method you decide to use for trading, we suggest that before taking any

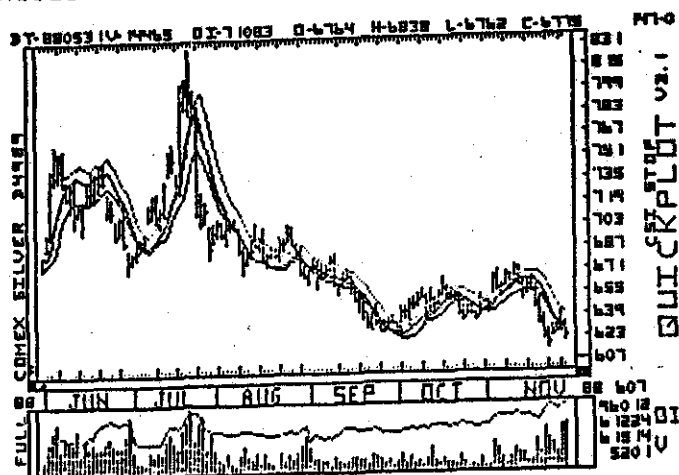
positions, you spend some time with CSI STOP to protect yourself. There is no shame in picking the wrong side of the market unless you let your losses run.

### VII CSI STOP

CSI STOP is a derivative-based filtering system which gives a BUY STOP, SELL STOP, CLOSE BASIS STOP, PROJECTED HIGH, PROJECTED LOW and PROJECTED CLOSE each day for any market. Bob Pelletier developed it using the same techniques he used in radar signal processing at G.E. Although it can be used as a stand-alone trading tool by itself, I want to show you how it is used with PDI.

The first step in using CSI STOP is to select a fit factor that meets your needs. A fit factor is a number between 0 and 1 (we require .01 and 1) which determines how closely you want to fit the filter to the market or, analogously, how close the stop values will be. The larger the fit factor the closer the stop will be to the day-to-day prices. If you want a fairly accurate forecast of tomorrow's price, you would use a high fit factor like .6 or higher. For setting stops, one would normally use a lower fit factor of .1 or less.

The chart below shows the BUY STOP, SELL STOP AND PROJECTED CLOSE superimposed on the silver contract we saw before. I have displayed it in medium resolution for better visibility. The line on top is the BUY STOP, the one on the bottom is the SELL STOP and the line in the middle is the PROJECTED CLOSE.



To use this in trading, one would simply look to see when the price bar is outside of the stop in the opposite direction of

one's trade. In this example, a short position would be stopped out when the price jumps upward to penetrate the BUY STOP.

It is up to the trader to determine how the stops will be used: if any crossing of the line constitutes a violation; or if he should use the system for a close-basis stop tool, for example.

CSI STOP not only protects you from losses, but helps you preserve your profits if the market suddenly turns against you. It can be used with any trading system, but we think it is an excellent complement to the ones I have shown you today.

### VIII QUICKMONEY

Since this seminar is about futures Techniques and Technologies, I'd like to tell you just a little bit about an exciting new product that has been under development for over two years. It is called QUICKMONEY, and the release date is set for a least four months from now.

QUICKMONEY will revolutionize the straddle/indexing form of analysis I showed you using our PERPETUAL INDEX data (see January 1989 News Journal). It is an automated system for following a collection of commodity market pairs. The PROBABLE DIRECTION INDEX and CSI-STOP are redesigned somewhat and are tailored to these objectives. They become a secondary part of QUICKMONEY.

QUICKMONEY has three levels of operation. The outer shell is a random gradient optimizer which will combine multiple parameter settings to find the best mix of parameters to trade a given intermarket commodity pair. It will work automatically and will greatly simplify the management of finding parameter mixtures that will be reasonably useful in exercising the model on a day to day basis.

The middle shell operation level will retain the best fit of parameter settings that had been found in past exercises. This operation helps minimize start up time and necessary computer processing whenever a given combination of markets is revisited.

The inner shell is a rather complex analysis of any given commodity or commodity pair. The main thrust of QUICKMONEY is the intermarket straddle work that is performed on all viable pairs of up to say 30 or 40 basic commodities. We have isolated about 200 good stable market pair relationships that move together and can be considered economically substitutable. The 200 viable pairs are drawn from a pair population of 450 to 1600 when there are 30 to 40 basic commodities. Corn and hogs, hogs and pork bellies, soybeans and soybean meal, etc. for example are some of the more obvious viable pairs. When a member of a pair moves up or down, its counterpart, in the long run, often moves proportionately in the same direction. The indexing logic of QUICKMONEY skims the top and bottom 1/4% (.25%) of all index difference extremes and produces about one trading opportunity per viable straddle pair per year. The net result is an average of about one reasonably safe intermarket trade per day. QUICKMONEY manages trade progress. The logic of PDI and CSI-STOP are used to track the index differences for straddles and to follow each individual commodity in the users portfolio.

QUICKMONEY will correct one shortcoming of the indexing technique revealed last month that deserves mention. As we had anticipated, the 1982 and 1983 average is becoming less and less germane as a "historical Norm" for some commodities. QUICKMONEY will automatically use a base period which will follow the market. The base therefore will change from week to week or day to day as index relationships are calculated. Oats, because of its high fiber content and recently discovered health food value is an example of a commodity that shifted significantly in relative importance with respect to the past. This is a commodity that simply has a greater relative value now than it did in 1983. It is still possible to use the index data for comparing a related commodity with oats, but a mental adjustment on the part of the user is required to analyze such situations with PERPETUAL INDEX data.

Platinum and palladium, because of their recent contribution to a pollution free environment that stems from their catalytic properties are another set of commodities

that have taken on a different cost perspective with respect to other precious metals. Aluminum is another example of technological influence that, because of its light weight and strong structural properties, has made the metal more valuable as a contributor to fuel efficient automobiles. The intermarket straddle user should constantly evaluate whether there has emerged a basic and permanent value shift for a given commodity pair before acting on an index derived disparity.

QUICKMONEY will not use PERPETUAL INDEX Data for comparing commodities. It will look at the most recent period of years of PERPETUAL CONTRACT prices for each market being studied and calculate its own set of indices to produce a relevant, moving historical norm on a daily basis. As was implied above, it will find the more underpriced and overpriced pair of commodities in a portfolio and give specific trading advice based on several PDI refinements. The new software will also offer a more detailed and more complete screen graphics price chart, and will support EGA graphics.

It is simple to state the objectives of QUICKMONEY but it is not so simple to program the logic necessary to carry them out. We are definitely nearing the end of the road in completing this project. Progress at this time is more in line with the finish work.

## IX CONCLUSION

I would like to point out that QUICKMONEY, like all of the products I have shown you will be a valuable tool in analyzing commodity markets. It will also require considerable study on the part of the investor to be used correctly. Everything offered by CSI is provided in the hope that it will enhance the trading success of our customers, but it remains the responsibility of the user to assure himself that his trading decisions are sound.

I hope I have left you with some fresh ideas about the commodity markets, some innovative ways in which to add value to your collected data and some novel technical analysis approaches that you may apply successfully to your own trading.

All of us at CSI are very enthusiastic about the services we offer and believe in. If there is anything I may have left out or something you would have me consider in more depth, please do not hesitate to make me aware of your wishes. We all look forward to hearing from our customers.

### CSI-STOP METHODOLOGY

Many users have been experimenting with CSI-STOP as a basis for limiting losses and letting profits run. CSI-STOP uses differential calculus to follow the market. The exact technique is called a Kalman filter after the mathematician who invented it.

A moving average is a filter also, but the Kalman filter is a much more adaptive and responsive technique and is far quicker to respond to market movement than the moving average filter. The Kalman approach is popular in radar signal processing and target tracking. QUICKSTUDY users have this tool in their bag of market tricks and can track any time series as closely or as loosely as desired by adjusting the method's "fit factor".

### NEW ROLL FORWARD DATE FOR NEAREST FUTURES CONTRACTS

Effective on Monday, February 13th for the data released on that day, the roll forward date for the #52, #53, and #55 NEAREST FUTURE contracts of all commodities will be the 1st day of the expiration month in lieu of the 1st day of the delivery month and year. This announcement will only affect commodities which expire earlier than the delivery month. Currently only commodity numbers 20 (World Sugar 11), 42 (Domestic Sugar 14), 89 (Heating Oil 2), 187 (Liquified Propane Gas), 188 (Light Crude Oil), and 224 (Unleaded Gasoline) will be affected.

This change should increase the utility of the 52, 53 and 55 series by giving visibility to a known roll forward date and eliminating the possibility of gaps in trading from one delivery month to another. CSI will replace any history a customer may have purchased to bring you up to speed with the new roll forward rule.

### EVENING AND WEEKEND ACCESS PROBLEMS

We know that some customers have had some recent difficulties in getting data during off hours and in making voice contact with our Customer Service staff through our answering service.

We took some steps to correct the problems and we wanted to advise our users on what to expect.

LONG DISTANCE MODEM CALLERS: We discovered that the two lead 1200 baud modems were defective and replaced them.

INTERNATIONAL MODEM USERS: Some users have switched, at our request, to Computer Science Corporation (CSC) to gain access. We chose the expensive CSC routing because there was no need to arrange for a user I.D. through your local PTT and we had some good experience with CSC access reliability. After some substantial usages, we found that for an unknown reason some users could not benefit from the CSC connection. We had to refer these customers back to Telenet. We have decided to experiment with a second international dialogue file that will use CSI's Private PTT password through Telenet and use the CSC dialogue file as a backup. Arrangements with Telenet and software to accomplish this is in the works. If we have a good experience with this in some test sites we will make it available to all. We hope to solve the problem first for London users.

OFF HOUR CUSTOMER SERVICE ASSISTANCE: Our customer service staff has recently neglected to respond to answering service calls because of a misinterpretation of the purpose of the answering service. The staff argued that 99% of the calls were routine and not of an emergency nature and there was a mix up as to who was responsible to respond to the beeper calls.

Rather than bore you with the details, we have adopted a modified policy to insure that service remains in place during off hours as follows:

- 1) A PC or XT monitor program that calls the data bank through Telenet, Tymnet, Compunet, and long distance every 20 minutes during off hours is now in place.