C S I N E W S J O U R N A L .

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WHAT'S NEW ---
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The entire staff of COMMODITY SYSTEMS, INC. would like to wish everyone a MERRY CHRISTMAS and HAPPY NEW YEAR. During the Christmas Season we will be closed for voice contact at the following times:

On Christmas Eve, December 24th, we will be closed at 6:30PM. Christmas Day, December 25th, we will be closed all day. New Year's Eve, December 31st, we will be closed at 6:30PM. And New Year's Day, January 1st, we will be closed all day.

PDI III
USER DESCRIPTION

This memo is directed to all new purchasers of PDI Version III and all former recipients of Version III.

Following the release of Version III, we discovered an error which affected both the calculation of profit and the marking of buy or sell signals under a scenario where the significance threshold was introduced as a negative quantity. The new release corrects these errors.

NEW PROFIT SCENARIO

We introduced a new bonus enhancement, in the form of a fifth profit scenario, that improves the ease with which PDI can uncover profitable opportunities and increases the profit percentage. In addition, the form and shape of PDI has been statistically enhanced to help users who make visual interpretations. Since our customers are our best salesmen, we are providing this new capability to qualified users at no extra charge.

Each of the five profit scenarios should be analyzed independently of the others, and the user should choose the one most suited to his trading style. Each will effectively produce a different set of trading rules, which could easily generate conflicting signals. It is likely for one profit scenario to buy while another sells over the same period of time. Just as a trend following system may conflict with the advice of an overbought/oversold system, the profit scenarios of PDI may also conflict. Therefore, do not mix one profit scenario with another for the same commodity, and do not look for two different solutions to produce confirming results except as suggested below.

PDI has been promoted as an index which

will both help answer questions about market direction and help identify overbought or oversold conditions. These two characteristics could produce opposite advice at the same time. For most favorable and consistent results, we recommend that the user search for a feasible profit scenario, and stay with it.

This new profit scenario of PDI Version III can be engaged by setting the significance threshold to a value between 50.00 and 53.00. The optimum value probably lies between 51.0 and 52.0. The larger the setting, the more selective PDI will be. Smaller readings will cause the system to be very active and trade more frequently. The input threshold is actually 50 plus the number of standard deviations of significant trading opportunities to capture.

When inputting a value greater than 50, the user will effect a trading strategy based on a variable significance threshold. In this event, a pair of 90/10 significance lines will be drawn based on the user's selection of the new significance threshold.

The PDI Version III program will set 90/10 lines to coincide with the significance level chosen, but only for the choice of 51.29 will the 90/10 lines be truly representative of a 90/10 distribution. The best solution discovered by the user, after iteratively studying PDI through many parameter choices, will be helpful in using PDI as a trading aid. However, it is quite possible the significance threshold chosen may be too low or too high for tomorrow's market when attempting to implement your "solution".

For this reason, there are times when a peak or a trough in PDI (which occurs between the 90/10 lines) could identify a market turning point. Similarly, it is entirely possible that the true turning point could occur after the 90 or 10 line is touched or, in some cases, after the index drops through the threshold back into the region between the lines.

The user should be prepared to sometimes modify his trading plan based on these considerations.

IMPROVED STOP CALCULATION

PDI III engages an improved stop calculation which makes the stop more adaptive. In normal markets, PDI previously produced accurate stop and closing price predictions. This is also typical of the new version. However, in this newer version, should the market abruptly move up or down by a significant amount, the stop or a predicted close will have less of a tendency to lag far behind the market. With the new study disk, stops and projected closes are mathematically adaptive to extreme market conditions and abrupt changes in market direction.

Three of the five PDI III profit scenarios engage stop protection. These include (1) the scenario described above,(2) a risk-reward analysis and (3) a buy/sell/hold system which enters and exits the market based on the original significance threshold and a whipsaw factor. The risk-reward analysis is introduced when the significance threshold lies between 0 and 50 and a non-zero reward multiple is given. The buy/sell/hold system is introduced when the significance threshold is set negative.

NEW PDI PROMPT

PDI III has the input prompt, "Enter market on all days or first day of penetration?" The prompt refers to the proximity of the PDI index with respect to the significance threshold. Normally, the market reacts in the opposite direction when the threshold is touched, but sometimes the market continues in the same direction, causing an erosion of capital in your new position. Since, in such an event, PDI moves the stop in the opposite desired direction, such a trade could become a very costly investment. Answering the above prompt with "L" for last day would cause all new market positions to be initiated at least one day later than optimum. The ability to test your strategy under both conditions may help to determine the best strategy for your trading style. The "all" choice will generally return the best profit, but PDI will occasionally spend more of your margin dollars to achieve the result than you have expected.

Because of these rules, it is very possible for PDI to greatly exceed the dollars at

which may be implied by the input sk proportion". The original risk is ased on the close, which follows any given appearance of an up or down arrow, an adaptive stop calculation and the risk proportion.

For the risk/reward scenario, an objective price is shown on the screen. It is the user's responsibility to enter the objective price as a standing buy or sell order. If, in the meantime, the stop is hit, the objective limit order should be cancelled.

All stop orders for these two studies are assumed to be entered on a close only basis. Such an approach, in itself, is risky, because serious simulated losses are often attributed to this assumption. The alternative would be to impose more distant stops on an open order basis.

When using PDI, several parameters are permitted. Some were introduced to help investigate their respective quality and effect during program checkout, and others are provided to permit some limited form of optimization. One parameter we suggest you ignore, except as a last resort, is the Volume-Interest amplifier. The "market timing" factor offered in earlier versions has been set to a nominal value and is no longer requested. The smoothing constant may also remain at 1 unless you either question the quality of the latest day of input data, you wish to analyze a stock, or you find PDI's curve shape to be erratic.

The volume-interest amplifier prompt has been left in the parameter prompt list primarily for commodities which experience regular drops in open interest on a quarterly expiration basis. Currencies and stock index markets are examples where some benefit may be derived through the use of this input.

Inputs which the user might consider for active optimization testing include the half-cycle period (there are only 10 possibilities and perhaps only 5 are viable), the risk proportion (about 10 or 20 possibilities around .2 ranging from .1 to .6), the whipsaw factor (a proportion of the index ranging from .25 to .50), and the number of days to start the process.

The whipsaw factor seems to work best around the level of .31 when the new profit scenario, with the significance factor set greater than 50, is used. Setting the whipsaw factor to 1. will eliminate any trading on the basis of the whipsaw parameter. In the significance factor greater than 50 scenario, the whipsaw factor is the amount of rise or drop that the PDI index may move before registering a trade in the opposite direction. The whipsaw factor is always interpreted in this way for any profit scenario which makes use of it.

The whipsaw factor is somewhat of an insurance policy to protect the user who wants to catch reversing market directions that may not be detected through the significance threshold.

And, finally, the "number of days to start the process" is always defaulted to twice the half cycle period. For optimization testing purposes, this parameter may be tested at its default, plus or minus 1.

In trading with PDI, the simulation you have performed is based on the assumption that new trades and reversals are taken at the high/low average on the day following the graphic presence of an up or down arrow. The buy stop or sell stop parameter shown is assumed to be executed at the close of the following day, if the protective stop is violated at the close. On days where a neutral position is in effect, or on the first day of a new position, PDI produces a "projected close", which may or may not be an accurate projection based on the user's choice of a "fit factor". A fit factor of .3 to .6 usually produces a fairly accurate projection. PDI profit scenarios often call for lower fit factors because PDI relies more heavily on the significance threshold; consequently more distant stops are, therefore, necessary.

OPTIMIZING PDI

In the study of past data for a given commodity in the search for maximum profit, a formidable number of combinations appear. For example, in profit scenario #5 where the significance threshold is introduced as a quantity over 50, the total number of parameter combinations for the half cycle, smoothing constant, signifi-

cance threshold, volume-interest amplifier, all or last prompt, days to start, whipsaw factor, risk proportion and fit factor may conservatively be represented by the respective product of 6 x 1 x 30 x 1 x 1 x 1 x 5 x 12 x 25 or 270,000. The individual number of trials for each parameter is estimated based on experience with the variables.

With this number of possibilities the chance of discovering a workable solution may seem formidable. However, we have found that with only a few trials (20 to, say, at most 50) it can be shown that it is very simple to uncover profitable results.

Finding a solution can be achieved using either the computer brute force approach or by using a mathematical gradient technique. The former would be accomplished by programming your computer to evaluate every possible combination. The latter can also be done by computer, or by hand, but is potentially far more powerful. A gradient technique may find a viable solution in minutes or hours; the brute force approach could take days for some problems or weeks or years for others.

Your computer may appear quick and powerful, but speed of light calculations may not be fast enough if the product of the number of combinations and the time to make one iteration exceeds one's lifetime.

A gradient technique is simply the taking of partial derivatives, a method of computing localized maximums. In this example, we have a linear (non-continuous) differential "equation" that we wish to solve. It helps to understand how the variables are correlated with other variables and to recognize the effects and sensitivity of each variable with respect to profit. If optimizing by hand, concentrate on one variable at a time by perturbating the variable in small steps. Always go at least two steps beyond a local maximum and jointly examine correlated variables in sequence. Rotate through all variables using the same small steps, and regularly return to variables solved locally in prior iterations. Think of your optimization exercise as a simple effort to achieve a well balanced color distribution on your TV set by slowly adding to the intensity of the red, green, and bl... controls until the picture is optimiz... Always work from the most profit... solution, perturbating (introducing sma... differences in parameters) each parameter positively and negatively in one direction at a time until increased profit is no longer possible. Then move on to a new parameter by holding the most profitable last parameter in place. Recognize at all times the physical impact of the variables on each other and on profit, and regularly study the graphic form of the index whenever perturbating variables which may affect the form of the PDI curve or the timing of the trades. Consider repeating the entire process from an altogether different starting point.

THE FIVE PROFIT SCENARIOS OF PDI

To reiterate from the above and earlier documentation, there are now five profit scenarios to PDI III. These profit scenarios may be engaged by selecting study 16 from the auxiliary study menu "M" and setting in a unique range of parameters for the significance threshold (ST) and/or reward multiple (RM). The following summary will briefly outline the scope of each profit scenario requested.

PROF. SCENARIOS	ST	RM	DESCRIPTION
1	0	-	Single Contract Buy/Sell/Hold System

This profit scenario simulates trading based on the movement of the PDI index with respect to the requested whipsaw factor. This scenario will be in the market at all times. Long reversals will result when PDI moves upward from the lowest reading of PDI in the last trade by the amount of the whipsaw factor, and short reversals will result when PDI moves downward from the highest reading achieved in the last trade by the amount of the whipsaw factor. Reversing signals will appear on the screen in the form of an up or down arrow. All reversals will be assumed to be executed at the high/low average of the day following the suggested arrow. No stop protection is programmed into this profit scenario.

PROF. SCEN-ARIOS	ST	RM	DESCRIPTION
2	>0&<50	0	Multiple Contract Buy/Sell/Hold System

This profit scenario simulates trading based on a violation of the significance threshold and will hold the trader in the market either long or short at all times. Should a subsequent penetration of the significance threshold in the same direction occur, the profit simulation will assume an additional contract is added. When a reverse arrow appears, all contracts held will be covered, and a single contract will be added in the new direction. All new positions are assumed to be taken at the market's high/low average on the day following the presence of the graphic arrow. Like profit scenario #1, no stop protection is programmed into this scenario, and the resulting profit "earned" could be very high or very low due to the multiple position possibility. Use this study with extreme care!

PROF. SCEN-ARIOS	ST	RM	DESCRIPTION
3	>0&>50	≠0	Risk/Reward Analysis with Stop Protection

This profit scenario is very interesting in that the user is asked to identify a level of risk and a desired reward multiple that will produce an objective profit. This study produces realistic stop protection and will only remain in the market until a protective stop loss is hit or a profit objective is met. Trading is undertaken only as a function of significance threshold penetrations. All positions are assumed to be taken at the high/low average following the presence of the graphic arrow, and users are expected to make use of the objective price parameter displayed. CSI rates this study to be superior to profit scenarios 1 and 2.

PROF. SCEN-ARIOS	ST	RM	DESCRIPTION
4	<0	-	Single Contract Buy/Sell/Hold System with Stop Protection

This profit scenario takes positions based on penetrations of the raw significance threshold and reverse movement in PDI by the amount of the whipsaw parameter. Traders will be in the market at all times, except for occasional periods following situations where the protective stop is violated. Reversals and new positions are assumed taken at the high/low average of the day following the graphic arrow. This study takes dual advantage of both the overbought and oversold tendency of PDI when the significance threshold is penetrated and, by virtue of the whipsaw parameter, it remains in the market in the direction of the PDI determined trend.

PROF. SCEN-ARIOS	ST	RM	DESCRIPTION
5	>50	-	Single Contract Buy/Sell/Hold System with Stop Protection

Unlike profit scenario 4 above, this profit scenario takes positions based on penetration of a transformed significance threshold and reverse movement in raw PDI by the amount of the whipsaw parameter. The same general rules which govern profit scenario 4 apply to this profit scenario, and as explained above, the user must enter the significance threshold as a standard deviation of PDI movement plus 50.

The user should take note of the difference in the PDI form and shape of profit scenario 5 and any other profit scenario within PDI Version III. The scenario 5 PDI graph has a much stronger tendency to oscillate alternately by touching the "buy" and "sell" lines, regardless of the direction of price. The analytical transformation which made this possible should give rise to many other applications of PDI to the markets.

DESCRIPTION OF EXHIBITS

Please examine gold Chart A drawn from profit scenario 3, a Risk/Reward Analysis, and gold Chart B which is based on profit scenario 5. The risk/reward analysis shown was in the market approximately half the time over a one year period and produced a simulated profit of approximately $98/ounce in gold in 38 trades. Profit scenario 5

was in the market approximately 11 months producing a simulated profit of $165 per ounce in 42 trades.

The input parameters which gave rise to these solutions for #49 gold are shown at the end of the News Journal.

Of course simulated profits are not actual profits, and these and all other such "solutions" do not guarantee future profits. We present such information to help quantify and qualify the performance of PDI on historical information. Such simulated profit capability has been requested by members of CSI's customer base.

We prefer the two profit scenarios illustrated in Charts A and B because they give the user substantial information about the market, but the subset of signals offered by the risk/reward analysis are not always coincident with profit scenario #5. Additional insight into the use of profit scenario #5 may be derived from profit scenario #4. The major difference between #4 & #5 lies in the use of raw PDI readings in place of transformed PDI readings. Transformed PDI readings are currently only a product of profit scenario #5.

Profit scenario 5 and profit scenario 4 employ the same basic decision-making logic for entering and leaving the market. In the course of correcting logic problems in profit scenario 4, it was determined that improved precision of market entry or exit could be achieved by analyzing PDI statistically as a stochastic (random over time) variable. In addition, it was discovered that the raw PDI reading produced by both PDI's adaptive and statistical analysis could be amplified and further enhanced for visual inspection by introducing an additional mathematical transformation. The result of this complex effort is a product that may explain more about the market than any other we have seen.

Please compare the raw PDI curve of chart A with the statistically transformed curve of chart B. Chart B attempts to identify all intermediate direction changes in price through an amplification algorithm which pushes PDI to the chosen significance threshold whenever a likely direction change is forecasted. In the event a new or reversing signal is detected whe recommended trade may hold more risk one would like to assume, we sugge receiving both forms of PDI before acting.

Both chart A and chart B were derived from a #49 Gold PERPETUAL contract over the inclusive dates of 850101 thru 861126. Chart A used the inputs: 13, 1, 12, .222, .0, and .13 which respectively represent the half cycle, smoothing constant, significance threshold, volume-interest amplifier, reward multiple, risk proportion, and fit factor. Chart B used the inputs: 7, 1, 51.25, .222. A, 15, .31, .01, and .009 which respectively represent the half cycle, smoothing constant, significance threshold, volume-interest amplifier, all or last, number of days to start process, whipsaw factor, risk proportion, and fit factor.

An S&P 500 solution was found which may be of interest. Using profit scenario #5, over the same range of dates, the inputs: 7, 1, 51.3, .222. A, 14, .30, .01, and .10 returned a profit of about 83 basis points or $41,500.

The solution for S&P and the two for gold are provided subject to a possible last minute revision to PDI. Should we add a parameter prompt, "Enter PDI direction adjustment", please replace the default with a zero to produce the results identified above.

ONE FINAL BONUS

For all profit scenarios except #2 in PDI III, the user may now observe the cumulative closed equity from day to day, position-to-position, by typing "P" after the study is displayed on the screen. The scope of the printout will depend on the date position of the chronological screen cursor. In addition, the same information may be displayed for a range of dates after the study is run by requesting the "study printout" option off menu M.

We are proud of the work we have done with PDI, CSI-STOP and CSI-TREND, and although we know of some additional analytic improvements that could be part of PDI, we will not be developing the methodology further until after our plans for QUICKMONEY are completed. QUICKMONEY is an