Dynamic Zone User's Guide

Version 2.5

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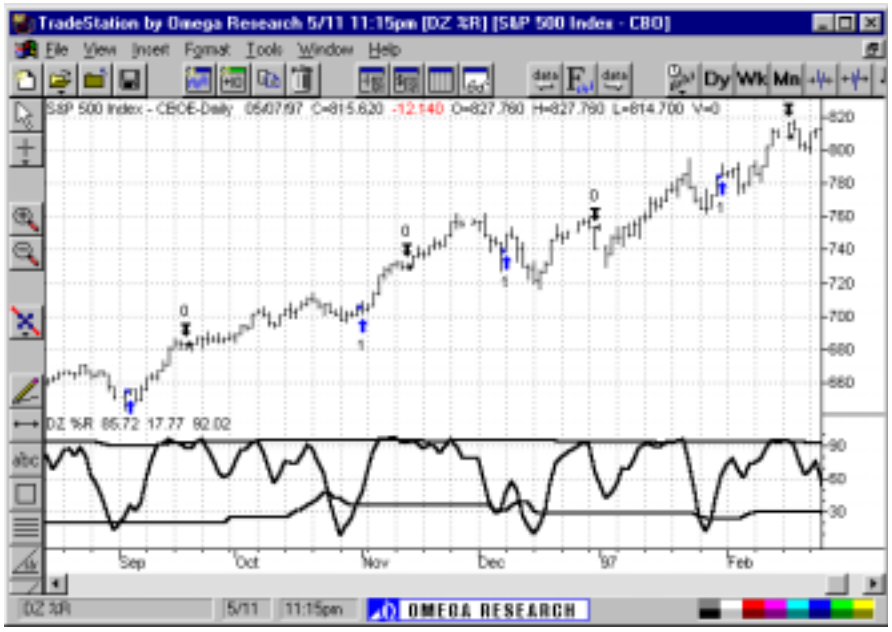

RINA Systems, Inc.
8180 Corporate Park Dr.
Suite 140
Cincinnati, OH 45242
http://www.rinasystems.com

Phone: 513-469-7462
Fax: 513-469-2223
E-mail: Dsinvest@msn.com

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Contents

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Introduction

This section provides basic information about your new Dynamic Zone software and RINA Systems, Inc. It also provides information about this User's Guide. In general, it answers the following questions:

- What is the Dynamic Zone Indicator?
- How Does the Dynamic Zone Indicator Work?
- What's in This Guide?
- How do I Use This Guide?
- What if I Have More Questions?
- What is RINA Systems, Inc.?

What is the Dynamic Zone Indicator?

The Dynamic Zone indicator is best explained by describing how it solves a common trading problem.

Extreme investing employs the use of oscillators to exploit tradable trends in the market. This style of investing follows a very simple form of logic: only enter the market when an oscillator has moved far above or below traditional trading levels. However, these indicator driven systems, lack the ability to evolve with the market because they use fixed buy and sell zones. Traders typically use one set of buy and sell zones for a bull market and substantially different zones for a bear market.

Herein lies the problem. Once traders begin introducing their market opinions into trading equations, by changing the zones, they negate the system's mechanical nature. The objective is to have a system automatically define its own buy and sell zones and thereby profitably trade in any market -- bull or bear. Dynamic Zones offer a solution to the problem of fixed buy and sell zones for any indicator driven systems.

How Does the Dynamic Zone Indicator Work?

An indicator's extreme levels can be quantified using statistical methods. These extreme levels are calculated for a certain period of time and serve as the buy and sell zones for a trading system. The repetition of this statistical process for every value of the indicator creates values that become the Dynamic Zones. The zones are calculated in such a way that the probability of the indicator value rising above, or falling below, the Dynamic Zones is equal to a given probability input set by the trader.

To better understand Dynamic Zones, let's first describe them mathematically and then explain their use in a trading example.

The Dynamic Zones definition:

Find V such that

for Dynamic Zone Buy: P{X<V} = P1
for Dynamic Zone Sell: P{X>V} = P2

Where P1 and P2 are the probabilities set by the trader, X is the value of the indicator for the selected time period, and V represents the value of the Dynamic Zone.

The probability input P1 and P2 can be adjusted by the trader to encompass as much or as little data as the trader would like. The smaller the probability, the fewer data values above and below the Dynamic Zones. This translates into a wider range between the buy and sell zones. If a 10% probability is used for P1 and P2, only those data values that make up the top 10% and bottom 10% for an indicator are used in the construction of the zones. In other words, 80% of the values will fall between the two extreme levels. Because Dynamic Zone levels are penetrated so infrequently, traders know that the market has truly moved into overbought or oversold territory.

Refer to the **Dynamic Zone Review** section for a detailed description on using the Dynamic Zone indicator on the TradeStation platform.

What's in This Guide?

This Guide is divided into the following sections to help you make the most of Money Manager:

- **Getting Started:** This section describes the steps to perform to start using the Dynamic Zone indicator. It includes the system requirements, the installation procedure, and the system setup information to get you started quickly and easily.
- **Basic Procedures:** This section provides user with the detailed step-by-step instructions for understand all Dynamic Zone indicator functions. You can use this section as a reference for applying the Dynamic Zone indicator to TradeStation charts.
- **Using the Dynamic Zone Indictor:** This section provides you with supporting information, including Dynamic Zone indicator uses complete with TradeStation code.

- **Sample Dynamic Zone Systems:** This section shows examples of Dynamic Zone trading system. Full TradeStation code is given for the CCI Spike and Extreme MACD trading systems.
- **Sample Dynamic Zone Indicators:** This section shows examples of Dynamic Zone trading indicators. Full TradeStation code is given for the Double DZ Levels, DZ ATR, DZ ADX and DZ with Closing Values.
- **Workshop Overview:** RINA Systems, Inc. presents the workshop series *Effective Methods for Evaluating and Improving Trading Performance.* Dynamic Zone indicator is used as a focal point throughout out this workshop. This intensive hands-on three-day workshop covers the six stages to create and build profitable trading systems. A variety of trading systems, complete with code, will be used to illustrate how to properly design, develop, evaluate and ultimately improve the performance of your own trading systems. The Contact RINA Systems for details on up coming workshops.

How do I Use This Guide?

This guide is designed to act as a reference to provide specific descriptions about the Dynamic Zone indicator. Users will also find tips on practical Dynamic Zone indicator within existing trading systems.

What if I Have More Questions?

If you have any problems or questions concerning this software, please refer to the contents of this manual. If you cannot find the answer to your technical support question in this manual, please contact our Customer Support at:

513-336-7128
or
513-772-3663

Technical Support is available Monday–Friday, 8:30 AM–6:00 PM EST.
If you have any comments or suggestions about the software, we would like to hear them. Our product reflects and includes many of our customers' suggestions. While we cannot guarantee your suggestions will be included in the next release of the product, we certainly will review and consider each one. You may reach us with your comments and suggestions at:

RINA Systems, Inc.
7854 Weavers Lane
Maineville, OH 45039

Phone: 513-336-7128
Fax: 513-771-7185
E-mail: Dsinvest@msn.com
http://www.rinasystems.com

What is RINA Systems, Inc.?

RINA Systems, Inc. offers trading performance improvement software and Provider, the company specializes in the evaluation, and improvement of trading services to the trading and investment industry. As an Omega Research Solution systems. RINA Systems has developed its evaluation and trading software, seminars, and other services specifically to help serious traders make more informed investment decisions. The following information describes the products and services we offer.

Products

- **Money Manager** allows traders to apply Money Management and Risk Management strategies to maximize profit potential while control trading risk. What-if scenarios can test a variety of strategies to assist in the design of diversified risk-adjusted portfolios. Money Manager explains exactly how to apply the strategy, what to do during and after each trade and even compares its trading performance before and after applying the strategy or strategies. It's even easy to use, just point click and begin trading, assisted by systematically tested money management strategies. Best of all no programming is required. Eliminate the trading guesswork with Money Manager.
- **3D SmartView** produces three-dimensional area charts based on TradeStation and SuperCharts optimization files. This software quantifies the robustness of your systems in an effort to improve their performance. It also allows user to quickly browse through the optimization results to find the trading system parameters that satisfy user constraints. 3D SmartView helps you harness the power of optimization and avoid curve-fitting your trading systems.
- **Portfolio Tracker** is a TradeStation/SuperCharts add-on program that allows you to easily manage and track multiple investment portfolios. Portfolio Tracker works directly with the Omega Downloader to automatically update portfolio prices quickly and efficiently. You'll get up-to-the-minute real world portfolio analysis at the click of a button. Portfolio Tracker is scheduled for release in the second quarter of '98.
- **Portfolio Maximizer** is a TradeStation/SuperCharts add-on program that systematically and objectively evaluates trading performance. This software offers many analytical tools and graphs that show the strengths and weaknesses of a trading system on a portfolio of markets. The software also can be used to combine and evaluate several systems as a portfolio. The description of trading performance includes statistical measures of both profit and risk. The capabilities include the ability to find the best asset allocation using "what if" analysis. Initial capital may also be used as a weighting factor for portfolio components to allow to design diversified risk-adjusted portfolios.

Services

RINA Systems offers the following seminars and other services to help you improve your trading systems' potential.

- **Effective Methods for Evaluating Trading Performance Seminar Series**. This intensive, three-day, hands-on seminar covers the six stages to create and build profitable trading systems. A variety of trading systems, complete with code, will be used to illustrate how to properly design, develop, evaluate, and ultimately improve the performance of your own trading systems. Participants receive a free copy of the Dynamic Zone indicator. Additional software discounts are also available for seminar participants.

- **Trading system evaluation and improvement services** using RINA Systems' proprietary Performance Technology software.
- **Trading systems design and development.**
- **TradeStation programming and consulting,** including DLL programming.

For more information concerning our products and services, please contact us at 513-772-7462 Monday–Friday, 8:30 AM–6:00 PM EST.

Getting Started

This section provides information about everything that you need and must do before you can start using the Dynamic Zone indicator. It includes:

- System Requirements
- Installation Procedure

System Requirements

To run the Dynamic Zone indicator on your PC be sure your system meets the following requirements:

- Windows 3.1, Windows 95 or Windows NT version 3.5 or later
- 486/33 or greater processor (P133 recommended)
- At least 16 MB RAM (32 MB for Windows NT)
- At least .5 MB free hard disk space
- Omega TradeStation version 3.5 or higher

Installation Procedure

The installation process is described step-by-step in the instructions below. If you have any questions please feel free to contact RINA Systems, Inc.

To begin the installation:

1. Start TradeStation's Power Editor.
2. Click on the **Open** menu and select **Transfer**.
   The Transfer Analysis Techniques dialog box appears.
3. Select **Transfer Analysis Techniques From Easy Language Archive File (.ELA)**.
4. Click **OK**.
5. A Transfer from archive file pop-up window will appear. Enter the drive address (A:/ or B:/) of the disk drive. The two required files to operate Dynamic Zones are dzsys.ela and dzind.ela.
6. Type **A:/dzind.ela** to transfer the Dynamic Zone indicator. You may also use the Browse function to search the A: or B: drive for the Dynamic Zone files (i.e. dzsys.ela and dzind.ela).
7. Click **OK**.
   A dialog box appears asking for the file type to transfer.
8. Click **Indicator**.
9. Click **OK**.
   An indicator listing appears.

10. Select the DZind indicator.
11. Click **OK**.
    The DZind indicator transfers to the TradeStation directory.
12. Repeat the steps to transfer additional ELA files to the TradeStation Directory.

Basic Procedures

The Dynamic Zone Indicator offer trades a unique way to design and improve a variety of trading systems. This section will cover these topics:

- Getting Ready to Work with the Dynamic Zone Indicator
- Dynamic Zone Program Files
- Dynamic Zone Review

Getting Ready to Work with the Dynamic Zone Indicator

Begin the process by adding the sample Dynamic Zone indicator to an open chart.

1. Open a trading system in the TradeStation charting program.
2. Click on the **Insert Menu** and select Analysis Techniques.
3. Click on the Indicator tab and scroll down the list of indicators.
4. Highlight the Dynamic Zone indicator and click **Plot**.

Note: *If the Dynamic Zone indicator is not listed, refer to the installation instructions for more information.*

Dynamic Zone Program Files

The Dynamic Zone indictor come complete with four files that can be used to design a variety of user defined indicators and systems. The files are as follows:

- Dynamic Zone System: This file contains a sample trading system.
- Dynamic Zone Indicator: These files contain the plot functions for the DZ Indicator and DZ Double Indicator.
- DZBuy Function: This file contains the Buy side probability engine for the system.
- DZSell Function: This file contains the Sell side probability engine for the system.

Dynamic Zone Review

After all of the files have been loaded and verified you are ready to begin. Let's begin our Dynamic Zone review with the sample trading system (i.e. Dynamic Zone system). The Dynamic Zone indicator/system has four basic inputs, a user defined Indicator (Ind), Time (N), and two Probability settings (StartPrB) & (StartPrS). The double Dynamic Zone indicator uses additional inputs most notably (StrtPrB2 and StrtPrS2). Let's begin with the user defined indicator. This indicator (Ind) is used to calculate the probabilities associated with the Dynamic Zones. The indicator is set be the user inside the Dynamic Zone system. The final three parameters create the Zones and give them their dynamic nature. As an example let's take a closer look at an actual trading system. This system will

use a 14-Day RSI Indicator with a 3-Day average, buying and exiting the market as the indicator crosses the Dynamic Zones.

The indicator (Ind) in this case is coded inside the Dynamic Zone trading system as follows.

Input: Ind(Average(RSI(C,14),3)) . . .

Note: Any user defined indicator can be used to create the DZ Zones, the RSI indicator is this system is used only as a trading example.

With the indicator (Ind) defined as a smoothed RSI Indicator we can now code the actual trading system. The strength of the Dynamic Zone system can be found in the Buy and Sell zones which use the Inputs N, StartPrB and StartPrS. Let's define these inputs in greater detail.

The N input represents Time of the look back period for the Indicator. In other words the number of bars that are used in generating the probabilities for the Buy/Sell Zones.

The StartPrB and StartPrS represent the Starting Probability for the two zones.

In our sample system we are using 70 (N) bars for our look back period, a Starting Buy Probability of .15 (StartPrB) and a Starting Sell Probability of .10 (StartPrS). The smaller the Starting Probability the more extreme the zones will be relative to overbought/oversold territory.

System: Dynamic Zone System

```
Input: Ind(Average(RSI(C,14),3)), N(70), StartPrB(0.15), StartPrS(0.10);
Vars: BuyZone(0), SellZone(0);

BuyZone=DZBuy(Ind, StartPrB, N);
SellZone=DZSell(Ind, StartPrS, N);

IF CurrentBar > 1 and Ind crosses above BuyZone then Buy at market;
IF CurrentBar > 1 and  Ind crosses below SellZone then ExitLong at market;
```

Note: The same inputs can be used for ShowMe and PaintBar functions.

Once the system is properly coded use the same inputs for the Dynamic Zone indicator and plot the system/indicator. The remaining two files DZBuy and DZSell contain the probability code and are blocked to prevent access. As a reminder once inside the different DZ program files **ONLY** re-code the areas **BELOW** the equal signs. If the primary code is altered or changed the system may not work properly. To avoid future problems we suggest that you keep a master file of all the programs in a safe place.

Using the Dynamic Zone Indicator

The Dynamic Zone indicator is best described using the DZ RSI trading system listed below:

System: Dynamic Zone System
Input: Ind(RSI(C,9)), N(70), StartPrB(0.10), StartPrS(0.10);
Vars: BuyZone(0), SellZone(0);

BuyZone=DZBuy(Ind, StartPrB, N);
SellZone=DZSell(Ind, StartPrS, N);

IF CurrentBar > 1 and Ind crosses above BuyZone then Buy at market;
IF CurrentBar > 1 and Ind crosses below SellZone then Sell at market;

Figure 1 illustrates the buy and sell zones in action for the S&P 500 market using a 9-day RSI indicator. Notice the area above and below the Dynamic Zones constitute the upper and lower 10% boundaries. The zones appear to evolve with the market because they use a rolling 70-day period of indicator values in their construction. The example systems throughout this User Guide were designed for the TradeStation™ platform.

Figure 1

Trading Example:
As an example, let's say our 9-day RSI system has been profitable over the last few years using the generally accepted fixed buy and sell zones of 30/70. The system buys the market as the RSI indicator crosses above the 30 level and sells when it crosses below the 70 level. The system remains in the market 100% of the time. Using these set parameters, the RSI oscillator performs well in a bull market, but breaks down in bear markets. The system's temporary failure may not be due entirely to the indicator itself, but rather may be caused by the system's strict buy and sell zones. In this case the zones should be altered to fit the declining market. In a bear market the buy and sell zones of 20/70 may work more efficiently.

The Dynamic Zones work with the market adjusting themselves automatically -- increasing for the bull and decreasing for the bear. The parameters that construct the RSI indicator remain constant, but the zones adjust to better reflect the current trading environment. This is accomplished by using a rolling average of indicator values in the calculation of the zones. The key after all is to have a mechanical system make its own decisions.

Indicator Comparison:
The principles behind the Dynamic Zones can be used with any oscillator based trading system. As an example a twenty-six year time period (1/5/70 - 11/27/96) was used to trade the S&P 500 Cash Index. Our sample 9-day RSI indicator will be used to construct our Dynamic Zones. Our system will use a look back period of 70 days with a probability of 10% for both the buy and sell zones. The fixed zones will use the traditional 30/70 levels. *(These systems have been designed for comparison purposes only and are not intended or recommended for actual trading).*

	DZ RSI	Fixed RSI	% Change DZ vs. Fixed
Net Profit	$202,235	$86,395	134.08%
% Profitable	68.18%	73.68%	(7.46%)
Win/Loss Ratio	.80	.45	77.78%
Profit Factor	1.72	1.25	37.60%
Adj. Profit Factor	1.37	.96	42.71%
Sharpe Ratio	.27	(.26)	203.84%
Total Trades	176	133	32.33%
Avg. Trade	$1,149	$649	77.04%
Avg. Run-up	$4,420	$4,805	(8.01%)
Max. Run-up	$205,105	$160,820	27.54%
Avg. Drawdown	$4,567	$5,809	(21.38%)
Max. Drawdown	$65,040	**$**84,606	(23.13%)

Trading results courtesy of Portfolio Maximizer.

Figure 2

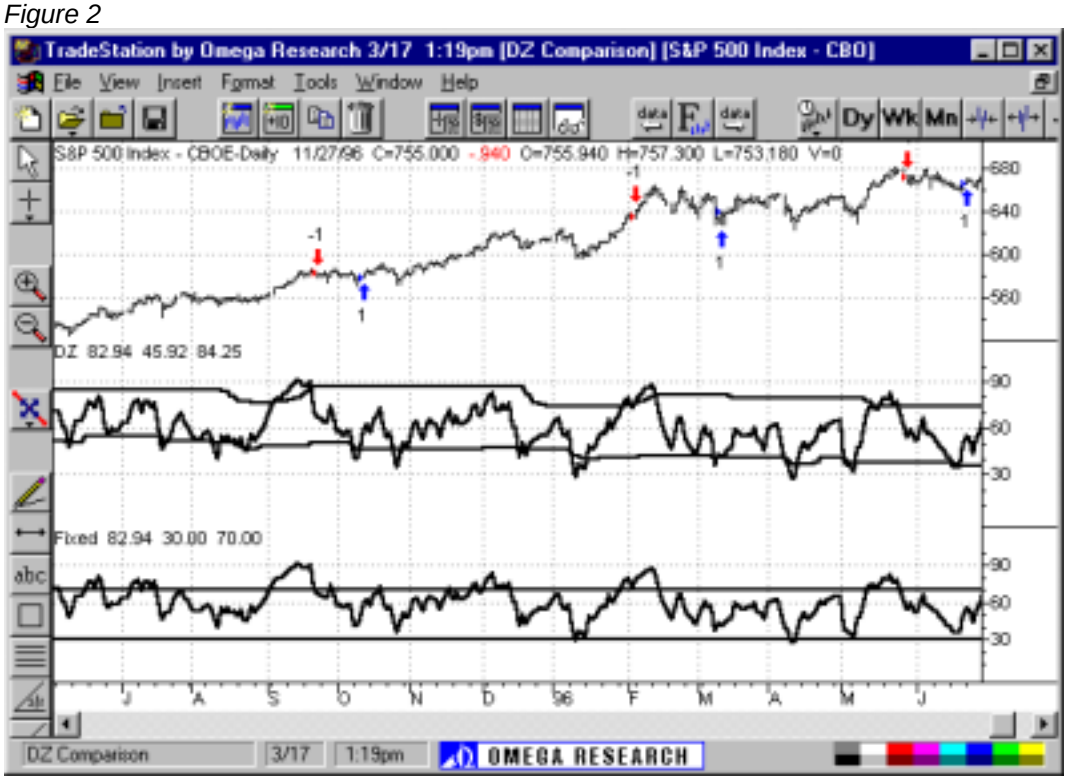


Figure 2 shows the RSI system with the Dynamic Zones in top graph and Fixed Zones in bottom graph. Notice how the Dynamic Zones adjust to accommodate the prevailing short-term trend in the market. These self-adjusting zones offer more efficient trades but more importantly additional trading opportunities. The overbought/oversold extreme levels associated with the Dynamic Zone indicator was penetrated more frequently than the fixed zones allowing for greater trading flexibility.

Any oscillator driven system that attempts to trade a market whether bullish, bearish or neutral, should benefit from the use of Dynamic Zones. The trading results from this trading systems confirm these findings. Indicators that have the ability to adjust their own buy and sell zones should in fact outperform those indicators that use fixed zones. Of course, further refinements can be made to systems that use Dynamic Zones to improve trading results. These improvements include: separate probability inputs for the two zones, various exit signals, and the use of money management techniques. Dynamic Zone trading systems are limited only by the imagination of the trader.

Real World Investing:

Let's take a look at an actual trading system and put Dynamic Zones to the test. The DZ %R system we have created uses the William's %R indicator smoothed by an adaptive moving average (AMAfunc2). The adaptive Moving average is available from Jurick Trading. The system is simple and straight forward buying and exiting the S&P 500 Futures as the indicator crosses its respective extreme zones.

In this example, the extreme zones are calculated by the Dynamic Zones program using the look back period of 70 days (N), and the buy/sell Probability factor of 12% (StartPrB & StartPrS). The actual Dynamic Zones program allows users to create indicators using a total of five separate user parameters, in

addition to the time and probability factors. If necessary each of these parameters can be optimized by TradeStation/SuperCharts. The specific system outlined below can be used for trading options, futures or even mutual funds. The system is specifically designed to recognize high probability trading points set by the S&P 500 market.

DZ %R System

TradeStation Code:

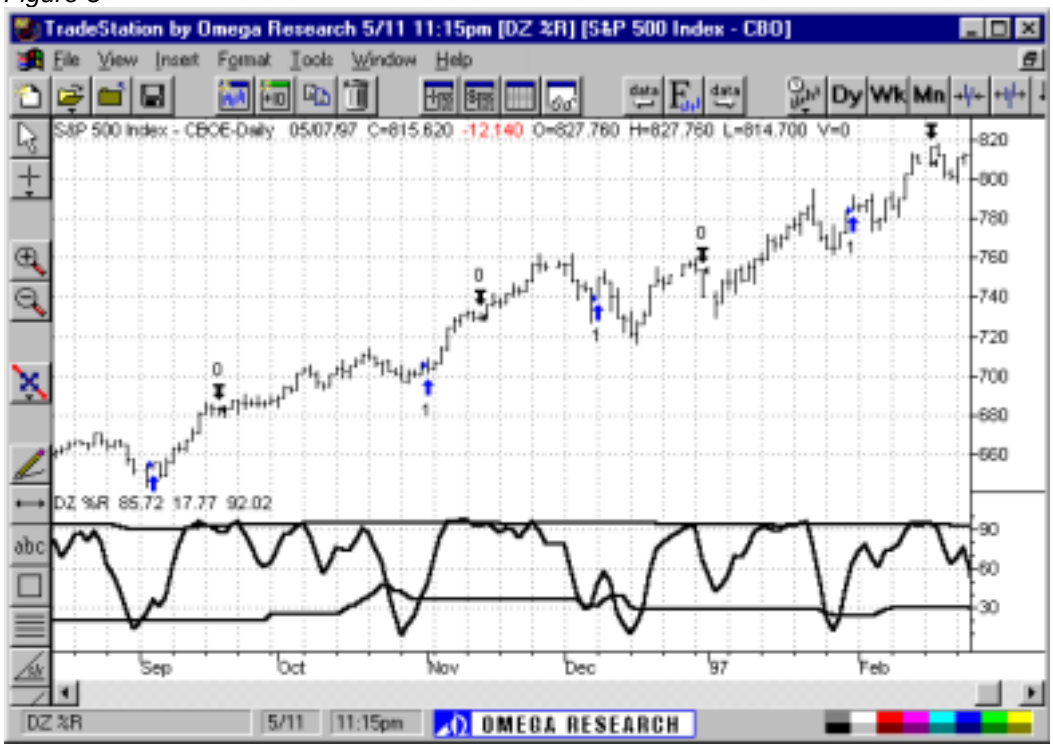
```
Input: Ind(AMAfunc2(PercentR(9),3)), N(70), StartPrB(0.12), StartPrS(0.12);
Vars: BuyZone(0), SellZone(0);

BuyZone=DZBuy(Ind, StartPrB, N);
SellZone=DZSell(Ind, StartPrS, N);

IF CurrentBar > 1 and Ind crosses above BuyZone then Buy at market;
IF CurrentBar > 1 and  Ind crosses below SellZone then ExitLong at market;
```

	DZ %R
Net Profit	$204,640
Total Trades	63
% Profitable	77.78%
Win/Loss Ratio	1.80
Profit Factor	6.30
Adj. Profit Factor	4.26
Sharpe Ratio	.30
Return Retracement	6.63
Avg. Trade	$3,140
Avg. Winning Trade	$4,798
Avg. Losing Trade	$2,664
Avg. Run-up	$6,444
Avg. Drawdown	$4,470
Max. Equity Run-up	$215,525
Max. Equity Drawdown	$38,000
Entry Efficiency	59.12%
Exit Efficiency	73.44%
% Time in market	42.15%
Avg. Time-in-Winner	23.27
Avg. Time-in-Loser	32.36

Trading results courtesy of Portfolio Maximizer.

The trading results for the **DZ %R** trading system are impressive given that it only trades 42% of the time. Its consistent nature is set up for SPX position trader or even Index Mutual Fund traders. The system can also be used as filter for other short-term trading systems.

Figure 3



The performance of this system overall is well above the average. Now let's examine the system even further by reviewing the trading results over various time periods. We will begin with an annualized break down of the key performance figures. These results reflect trades that were initiated and closed within the calendar year.

Annual Analysis (Mark-To-Market):

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
YTD	$18,980	8.05%	100	2	100.00%
12 month	$47,140	22.72%	2.22	6	83.33%
96	$53,390	29.29%	11.21	8	87.50%
95	$39,565	27.73%	100.00	7	100.00%
94	$(625)	(0.44)%	.93	7	57.14%
93	$20,375	16.57%	9.69	9	88.89%
92	$6,485	5.57%	3.54	7	57.14%
91	$30,490	35.46%	100.00	6	100.00%
90	$6,235	7.82%	1.47	7	57.14%
89	$17,695	28.52%	8.59	7	71.43%
88	$7,210	13.15%	3.26	6	83.33%
87	$4,840	9.68%	100	1	100.00%

Trading results courtesy of Portfolio Maximizer.

The next table itemizes the systems performance over extended time periods. The trading results remain extremely consistent through various market conditions.

Annual Rolling Period Analysis (Mark-To-Market):

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
97	$18,980	8.05%	100.00	2	100.00%
96-97	$72.370	39.70%	14.84	10	90.00%
95-97	$111,935	78.44%	22.40	17	94.12%
94-97	$111,310	77.66%	9.15	24	83.33%
93-97	$131,685	107.10%	9.23	33	84.85%
92-97	$138,170	118.63%	8.45	40	80.00%
91-97	$168,660	196.16%	10.09	46	82.61%
90-97	$174,895	219.32%	6.50	53	79.25%
89-97	$192,590	310.38%	6.65	60	78.33%
88-97	$199,800	364.33%	6.36	66	78.79%
87-97	$204,640	409.28%	6.49	67	79.10%

Trading results courtesy of Portfolio Maximizer.

This special William's %R trading system is able to outperform any indicator based system in its class. The trading logic behind the Dynamic Zones can benefit any oscillator based trading system.

Conclusion:

Dynamic Zones offer traders a different perspective on the typical trading systems. The markets are constantly changing, and if indicator driven trading systems are to remain competitive, they must learn to evolve with the markets. Dynamic Zone based trading systems can actually quantify the extremes and thereby improve the trading process. And most importantly these trading improvements can be used to increase the profit potential in any market.

Sample Dynamic Zone Systems

In this section we will describe two additional trading systems that utilize the Dynamic Zone indicator their construction. These two trading use very different indicators to drive their trading. The first is the CCI Spike System that is short term by nature. The second system is the Extreme MACD System that trades on an intermediate basis. Both of these systems trade the long side of the market.

Let's begin with our first system.

CCI Spike Trading System

System Description: This system uses the momentum Commodity Channel Index (CCI) indicator to find short-term bottoms in the market. The CCI indicator is extremely volatile and is generally difficult to use when trading the S&P 500 Index. The system, however, has turned this volatility into a trading advantage by using the spread or gap between the CCI index and its own moving average. Specifically if the gap is larger then a certain percentage and the CCI indicator crosses above its buy zone we enter into a long position. The system remains in the market for a short period, exiting as the indicator crosses to the down side. As designed, this system only trades long the market and is best used in choppy bullish markets.

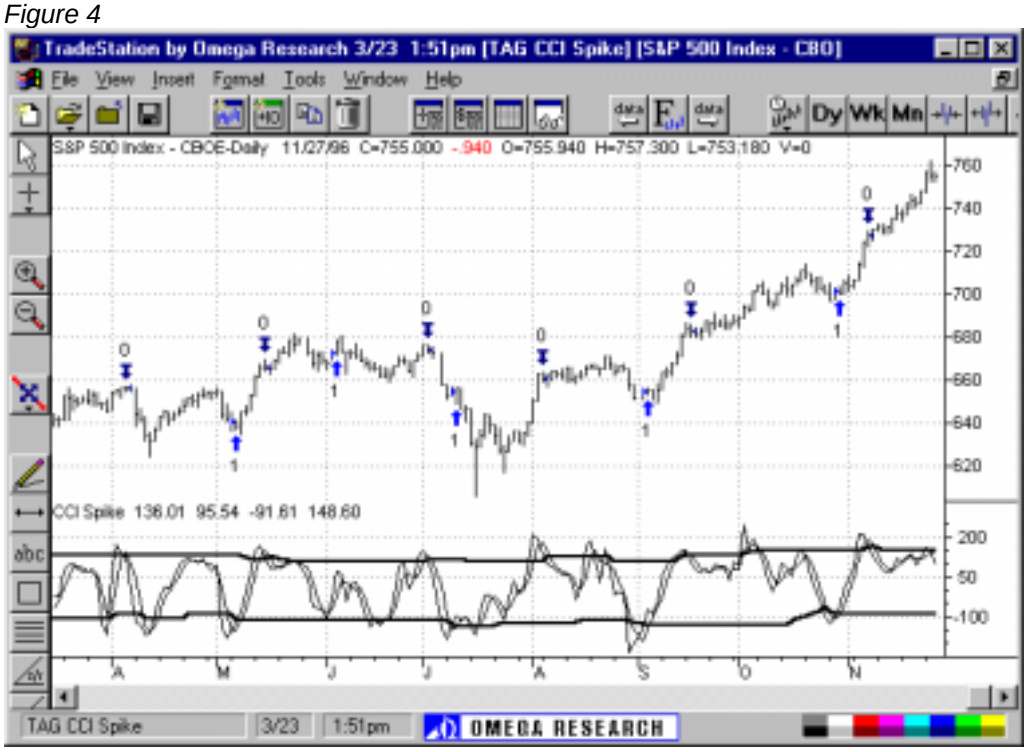
Note: The CCI Spike system was presented by David Stendahl in a two tape video set entitled ***"A Guide to Testing and Evaluating Portfolios with Portfolio Maximizer".***

TradeStation Code:

```
Input: Ind(AMAfunc2(CCI(10),3)), Gapper(1.23), N(70), StartPrB(0.16),
StartPrS(0.15), Len(10), BLen(.5);
Vars: BuyZone(0), SellZone(0), IndF(0), IndS(0), Gap(0);

BuyZone=DZBuy(Ind, StartPrB, N);
SellZone=DZSell(Ind, StartPrS, N);
IndF = CCI(Len);
Gap = (IndF)/(Ind);

If Gap[1] > Gapper and IndF crosses over Ind and (IndF[1] < BuyZone or IndF <
BuyZone) and C < BollingerBand(C,20,BLen) then Buy ("Spike Buy") 1 contract at
market;

If IndF < IndF[1] and IndF[1] > IndF[2] and (IndF > SellZone or IndF[1] > SellZone
or Ind > SellZone) then exitlong;
```

CCI Spike is an excellent system to find quick little reversals in the market. The system essentially searches for "V" bottoms in the S&P market to go long and liquidates as the indicator reaches overbought territory calculated by the Dynamic Zone indicator.

Figure 4

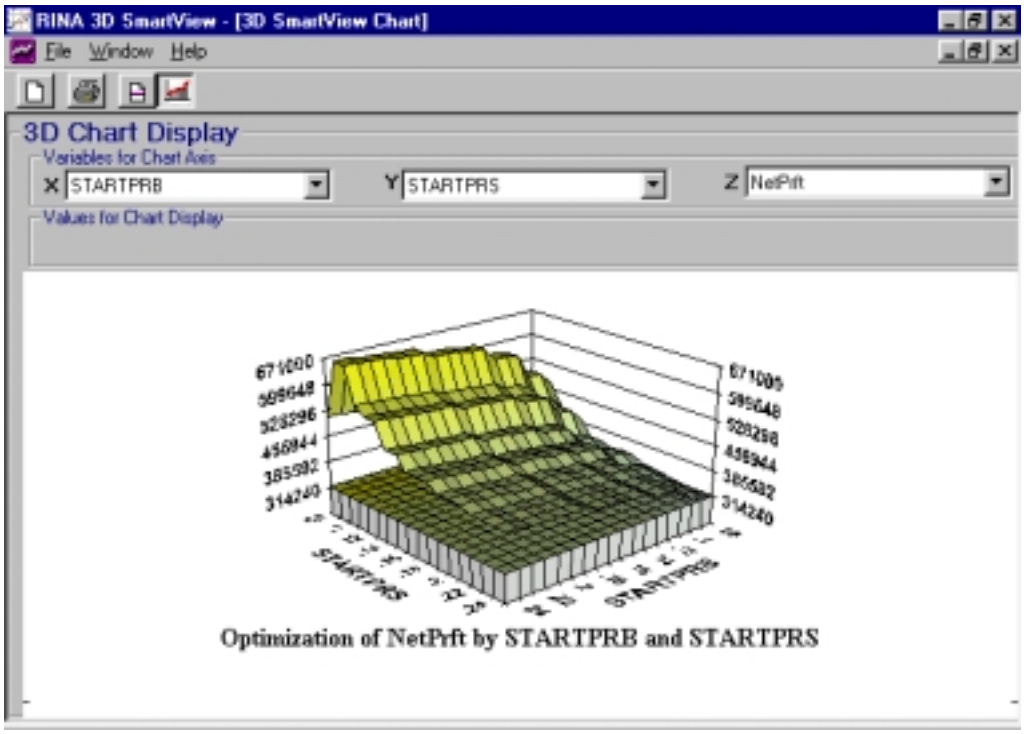


The CCI System uses separate setting for the Dynamic Zone probability variables to value over bought and over sold levels. The system uses a StartPrB level of .16 and a StartPrS level of .15. These levels were selected by using a three dimensional robustness graphic generated by 3D SmartView.

CCI Spike: *partial code*
Input: Ind(AMAfunc2(CCI(10),3)), Gapper(1.23), N(70), **StartPrB(0.16), StartPrS(0.15)**, Len(10), BLen(.5);

The goal in using an optimization graphs is to determine the robustness of a trading system. Look for system results that are well rounded and avoid sharp tops. The more robust or stable the trading results, the more likely it is to maintain its performance into the near term future. It is best to view the system based on multiple trading results (i.e. Net Profit, Profit Factor, % Profitable, Average Win/Average Loss…). The more performance results that point to the same general area, the less susceptible the performance of the system is to minor changes in the x and y variables.

Figure 5: CCI Spike Net Profit Optimization



Graphic provided by 3D SmartView

Once the CCI spike system has been coded in TradeStation with appropriate input setting we begin its historical performance evaluation.

Performance evaluation is critical to the design and development of a trading system. Traders and investors alike need to assess their system's true worth in an effort to build trading confidence. The tools presented in this seminar will outline a process that systematically and objectively evaluates trading performance.

The rationale for a detailed evaluation is simple -- every trader has his or her own an idea as to what makes a great trading system. A system that fits one person may not be appropriate for another. It's not uncommon to hear two traders talk about the same trading system that one loves and the other hates. This difference in opinions is most likely attributed to their individual trading style. One trader may be aggressive while the other is conservative. Just because a system is historically profitable, doesn't necessarily mean that every trader is suited to follow the system.

There are plenty of trading systems to choose from; the object is to find the one that best matches the personality of the trader. Only the individual trader can make the final decision as to the worth of a trading system. Does the trader have the reward/risk profile to trade the system? No matter how profitable a system appears, if a trader doesn't have the intestinal fortitude to follow it, then they should look for another trading system.

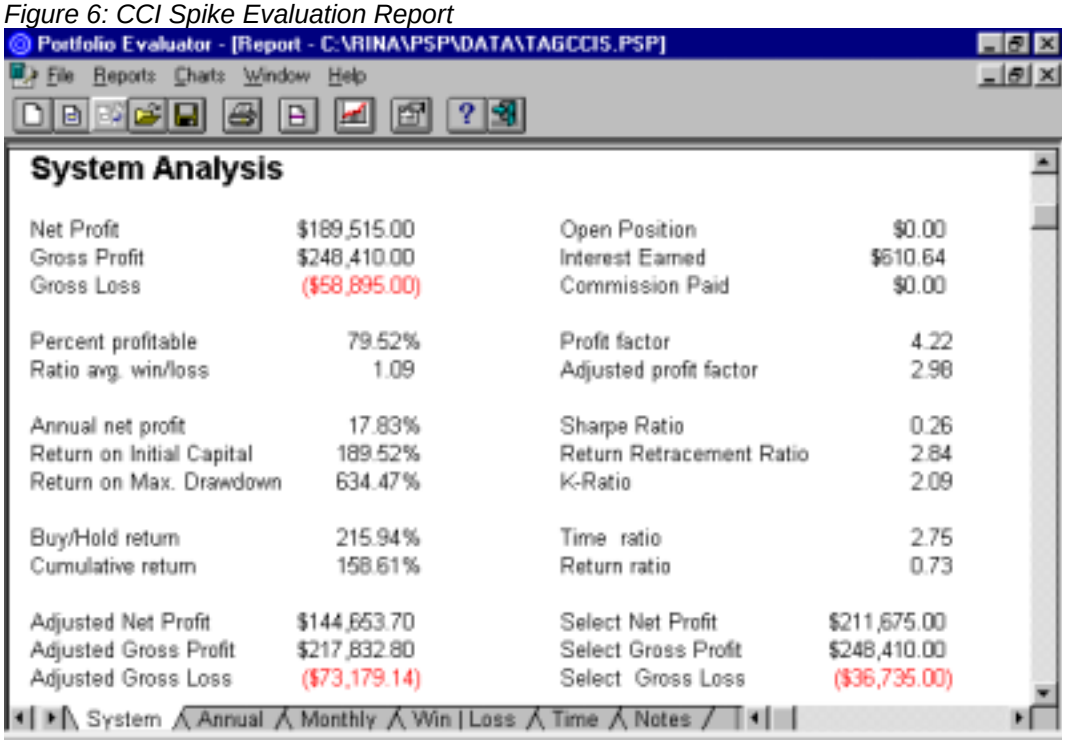
The evaluation process we use is divided into a number of sections. Each section examines trading performance from a different perspective. Certain tools are easily calculated while others are more complex. The combination of all of these tools will provide for a complete and thorough system evaluation.

The evaluation process begins with a general overview of the system's performance. Once complete we progressively work toward more specific evaluation tools to determine the system's true trading characteristics. The entire evaluation process is comprised of the separate sections listed below:

- System Analysis
- Profit Ratios
- Return Figures
- Total Trades
- Outlier Trades
- Drawdown/Run-up
- Consecutive Trades
- Trading Summary
- Equity Curve Analysis
- Time Analysis

A quick snap shot of the Portfolio Maximizer system analysis report shows a system with extremely good risk/reward ratios. For more information concerning the CCI Spike trading system contact RINA Systems.

Figure 6: CCI Spike Evaluation Report



Graphic provided by Portfolio Maximizer.

Trading Tactics: This short-term bullish trading system exploits over extended markets. Futures, options, and mutual fund traders should take full advantage of this high probability trading system. This system rarely exits at the markets intermediate peak, so other exiting signals may be used in place of our indicator crossover technique.

The second Dynamic Zone system uses the Moving Average Convergence Divergence (MACD) indicator to trade markets on an intermediate basis.

Extreme MACD Trading System

System Description: This system trades in a similar manner to the traditional MACD system but with a modification. As its name indicates, this system uses extreme reading (i.e. overbought oversold territory) to generate trading signals.

TradeStation Code:

```
Input: Ind(MACD(C,12,26)), N(70), StartPrB(0.12), StartPrS(0.12);
Vars: BuyZone(0), SellZone(0), Indicator(0);

Indicator = MACD(C,12,26);
BuyZone = DZBuy(Ind, StartPrB, N);
SellZone = DZSell(Ind, StartPrS, N);

If CurrentBar > 1 and Indicator crosses below BuyZone
Then Buy Market;

If CurrentBar > 1 and Indicator[1] > Indicator[2] and Indicator[1] > Indicator and
Indicator[1] > SellZone
 Then Exitlong Market;
```

Figure 7

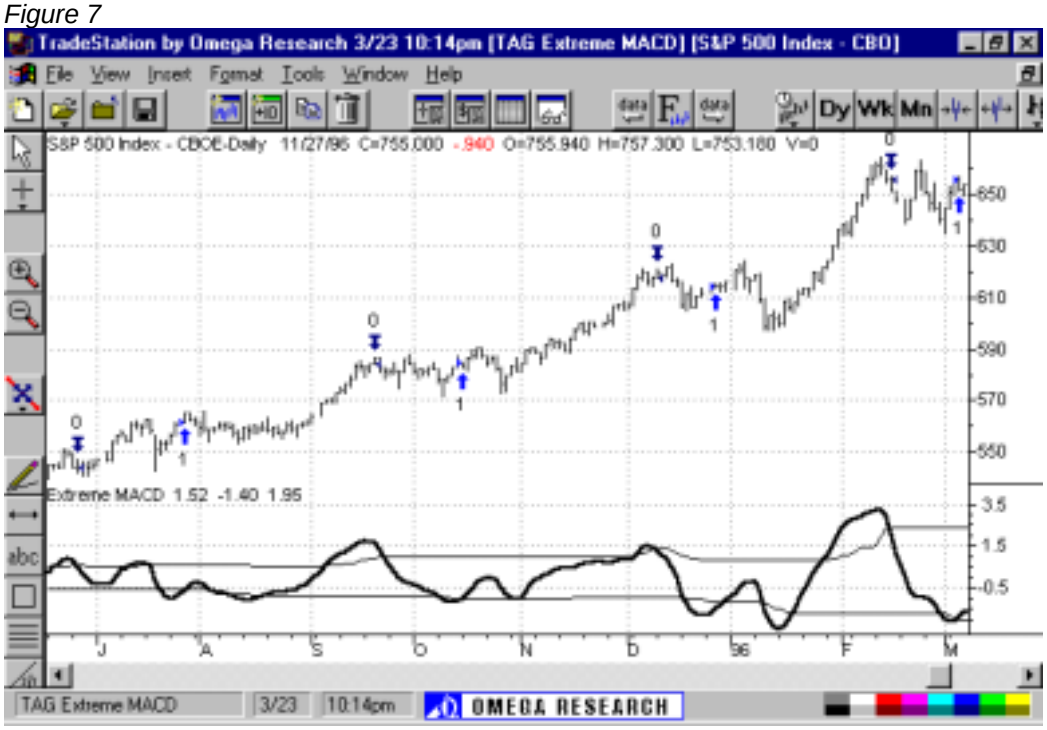
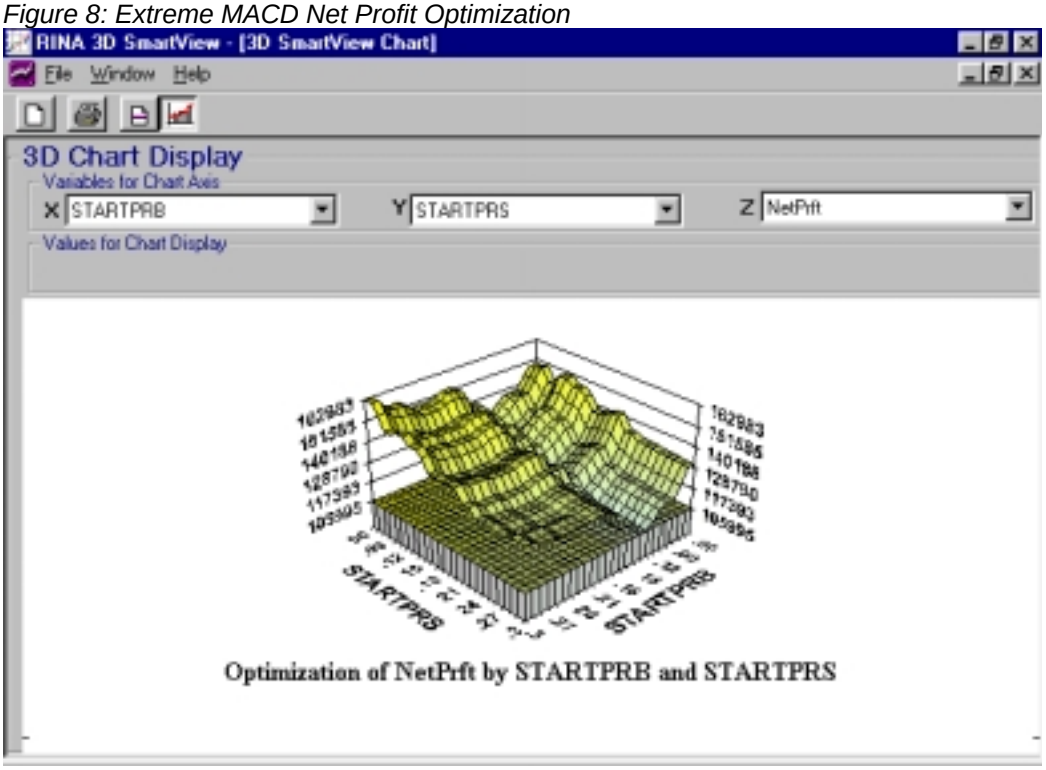


Figure 8 below shows a Net Profit 3D graph for the Extreme MACD Dynamic Zone trading system. These results indicate a system with very stable performance results. Other outputs, not shown, such as Profit factor, ROA, Maximum Drawdown, Average win/ average loss, were also used to determine the correct input setting for the system.

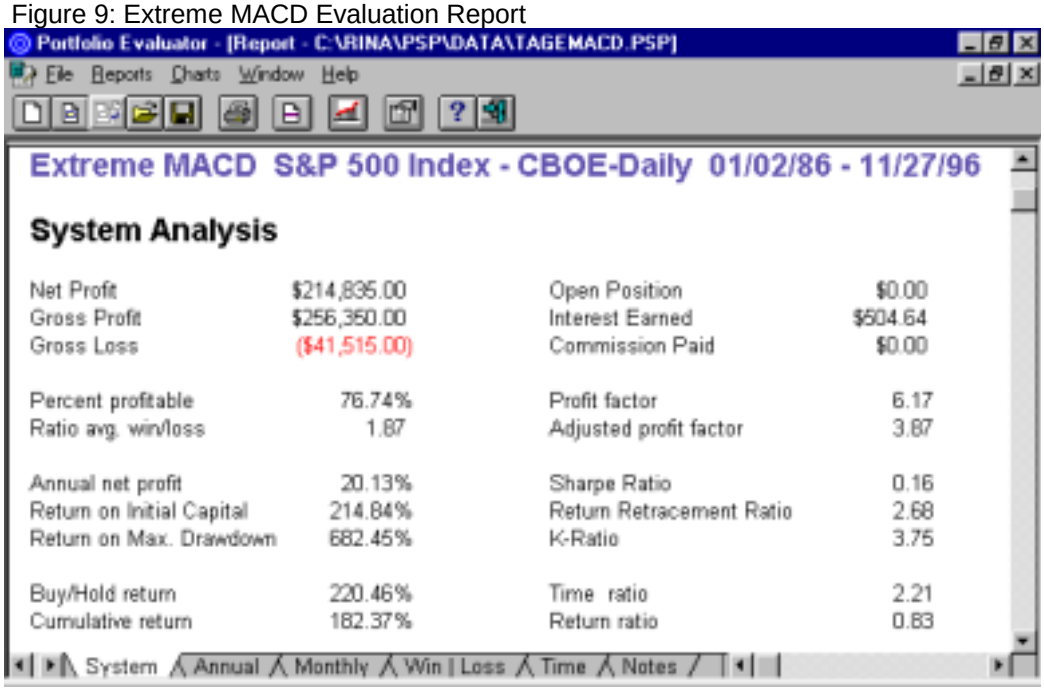
Figure 8: Extreme MACD Net Profit Optimization



Graphic provided by 3D SmartView

The Portfolio Maximizer system analysis report shows a system with very good profit figures with above average risk/reward ratios. For more information concerning the Extreme MACD trading system contact RINA Systems.

Figure 9: Extreme MACD Evaluation Report



Graphic provided by Portfolio Maximizer.

Trading Tactics: The extreme MACD system is well suited for position traders searching for extended high probability trading periods. Even mutual fund investors will find this system perfect for adding to existing trades.

Sample Dynamic Zone Indicators

The Dynamic Zone indicator may also be used in a number of other formats. This section we will center on TradeStation code using the Dynamic Zone indicator. The Dynamic Zone sample indicators are listed below:

- Average True Range
- ADX
- Closing Values
- Double DZ Levels

Dynamic Zones with Average True Range.

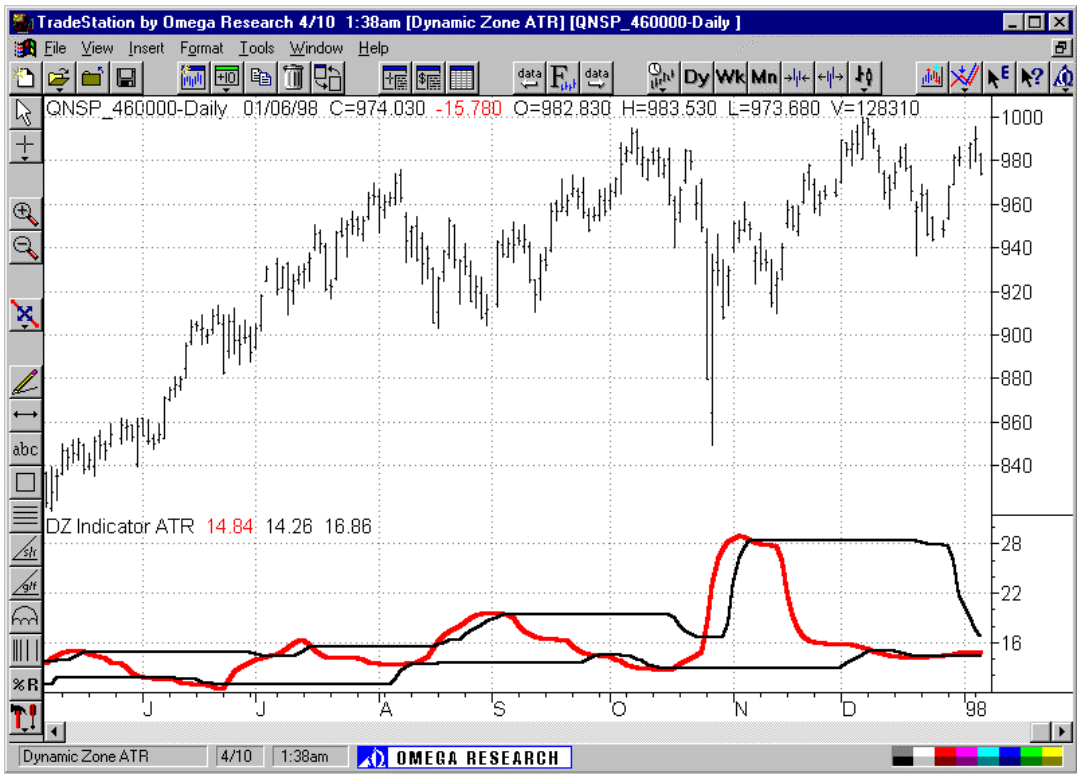
This Dynamic Zone Average True Range (ATR) indicator values a markets volatility based on a 35 day trading windows. As the ATR moves across the upper zone the market is considered to be extremely volatile. As the indcator moves below the lower zone the market is considered to be quite and less volatile.

This DZ ATR indicator can be used as a filter to prevent systems from trading during volatile periods or possible just the opposite only allow the system to trade during extreme volatile periods.

TradeStation Code:

```
Input: Ind(AMAfunc2(AvgTrueRange(14),3)), N(35), StartPrB(0.12),
StartPrS(0.12);
Vars: BuyZone(0), SellZone(0);

BuyZone=DZBuy(Ind, StartPrB, N);
SellZone=DZSell(Ind, StartPrS, N);

Plot1(Ind,"Indicator");
Plot2(BuyZone,"BuyZone");
Plot3(SellZone,"SellZone");
```

Figure 10



The ATR indicator with Dynamic Zone levels. These zones value a markets historical volatility level.

Dynamic Zones with ADX

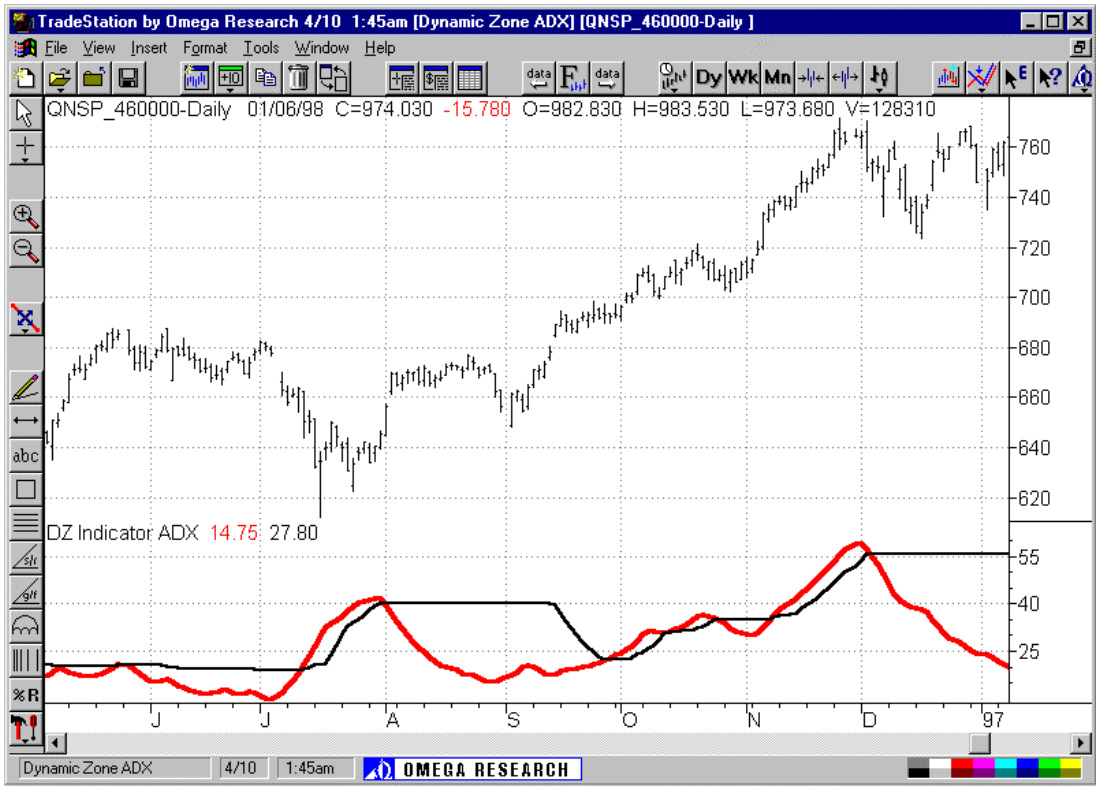
This Dynamic Zone ADX indicator values a markets trending level based on a 35 day trading windows. As the ADX moves across the Dynamic Zone level the market is considered to be trending. As the indicator moves below the Dynamic Zone level the market is considered not trending. Rather then depend on the same fixed ADX level, Dynamic Zones offer the indicator an opportunity to evolve with current market conditions.

This DZ ADX indicator can be used as a filter to prevent or allow systems to trade during trending periods.

TradeStation Code:

```
Input: Ind(ADX(14)), N(35), StartPrB(0.12), StartPrS(0.12);
Vars: BuyZone(0), SellZone(0);

BuyZone=DZBuy(Ind, StartPrB, N);
SellZone=DZSell(Ind, StartPrS, N);

Plot1(Ind,"Indicator");
Plot2(SellZone,"ADX Level");
```

Figure 11



Dynamic Zones with Closing Values

This Dynamic Zone indicator based on closing prices evaluates a markets level of support and resistance based on a 35 day trading windows. As the underlying instrument penetrates the upper level it is considered to be over valued. If it penetrates the lower level the underlying instrument is considered oversold. These Dynamic Zone levels combined with other indicators such as ATR and or ADX help evaluate if a markets volatility or trending nature should continue or reverse.

TradeStation Code:

```
Input: Ind(C), N(35), StartPrB(0.02), StartPrS(0.02);
Vars: BuyZone(0), SellZone(0);

BuyZone=DZBuy(Ind, StartPrB, N);
SellZone=DZSell(Ind, StartPrS, N);

Plot2(BuyZone,"Over Sold");
Plot3(SellZone,"Over Bought");
```

Figure 12

Double Dynamic Zone Levels

Trading systems may also benefit from multiple zones. The Double Dynamic Zone indicator measures two separate extreme levels. The first level is easily penetrated signifying normal overbought or oversold levels. The second level is penetrated on rare occasions. They signify extreme overbought or oversold levels. The use of these double levels allows systems to be designed to better fit current market conditions.

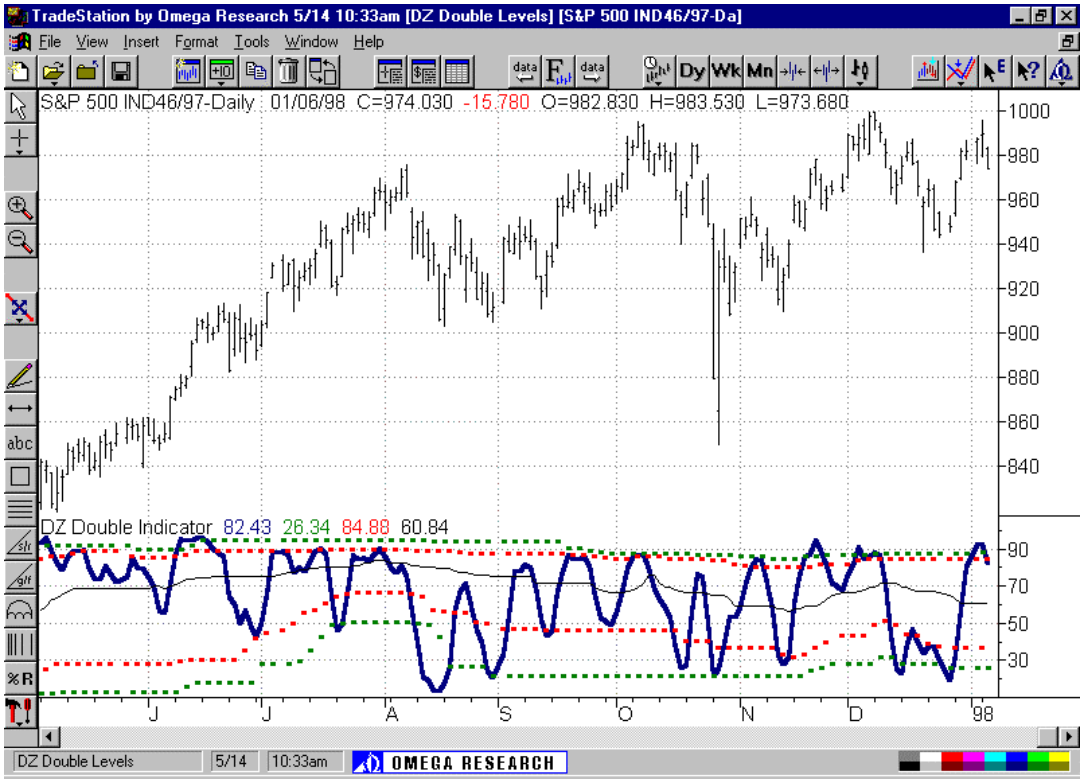
The indicator example below uses the Williams %R indicator with two separate extreme Dynamic Zone levels. The zones use a 6% (.06) and 20% (.20) probability setting to measure overbought and oversold levels. If the first level is breached a trade is close at hand, if however the second more extreme level is penetrated then a trade almost imminent. These probability settings are used for instructional purposes only and may vary depending upon the trading profile of the underlying market.

TradeStation Code:

```
Input: Ind(Average(PercentR(9),3)), N(70), StartPrB(0.06), StartPrS(0.06),
N2(70), StrtPrB2(0.20), StrtPrS2(0.20);

Vars:   Plotgreen(0), Plotred(0), BuyZone1(0), SellZone1(0),BuyZone2(0),
SellZone2(0), CZone(0);

Plotgreen = Mod(BarNumber,2);
Plotred = Mod(BarNumber,2);

{Note: BuyZone2 and SellZone2 use the StrtPrB2 and StrtPrS2 respectively and
not StartPrB2 and StartPrS2.  Additional levels can be created by following the
same logic used to construct Buy/Sell Zones 2}

BuyZone1=DZBuy(Ind, StartPrB, N);
SellZone1=DZSell(Ind, StartPrS, N);
BuyZone2=DZBuy(Ind, StrtPrB2, N2);
SellZone2=DZSell(Ind, StrtPrS2, N2);
CZone=DZBuy(Ind, .5, N);

Plot1(Ind,"Indicator");
If Plotgreen = 0 then Plot2(BuyZone1,"Normal");
If Plotgreen = 1 then Plot2(SellZone1,"Normal");
If Plotred = 1 then Plot3(BuyZone2,"Extreme");
If Plotred = 0 then Plot3(SellZone2,"Extreme");
Plot4(CZone,"Center");
```

Figure 13 below shows a TradeStation graphic that uses the Double Dynamic Zone indicator. The two pairs of dotted lines measure the individual extreme levels. The solid line running between all of the bands is the central band which is used as reference guide. The central line is noted in the Double Dynamic Zone indicator as Plot4(CZone,"Center").

Figure 13



Dynamic Zone Trading Logic

Buy Side (Long) Logic:

- Purchase as the Indicator enters into overbought territory.
- Purchase as the Indicator bottoms within overbought territory.
- Purchase as the Indicator exits from overbought territory.
- Purchase as the indicator leaves overbought territory only after having penetrated extreme overbought territory.
- Purchase a bullish divergence only if the Indicator has penetrated overbought territory.
- Leg into (add to) positions as the Indictor works through normal and extreme overbought levels.

Sell Side (Short) Logic:

- Liquidate as the Indicator enters oversold territory.
- Liquidate as the Indicator bottoms within oversold territory.
- Liquidate as the Indicator exits from oversold territory.
- Liquidate as the indicator leaves oversold territory only after having penetrated extreme oversold territory.
- Liquidate a bullish divergence only if the Indicator has penetrated oversold territory.
- Leg out of (liquidate from) positions as the Indictor works through normal and extreme oversold levels.

Trading systems and trading indicators constructed from the Dynamic Zones are unlimited. Any indicator that uses overbought or oversold levels will benefit from the Dynamic Zone indicator. If you find additional uses for the Dynamic Zone indicator and would like to share your ideas feel free to contact David Stendahl at RINA Systems.

Workshop Overview

Effective Methods for Evaluating & Improving Trading Performance

This intensive three-day workshop covers the six stages to building and trading profitable systems. David Stendahl will present a variety of trading systems he personally uses to trade S&P Futures, OEX Options and Specialty Index Mutual Funds. These fully disclosed trading systems will be used to illustrate how to properly design, development, evaluation and ultimately improve the performance of your own trading systems.

Stage 1: Designing

- Learn the art of defining a trading approach prior to developing a specific trading system.
- Review a variety of methodologies applicable to mechanized trading.
- Discuss the advantages and disadvantages of Mechanical trading.
- End-of-Day vs. Intraday trading.
- Review RINA Systems indicator and systems library.

Stage 2: Developing

- Learn to write Indicators and trading systems using the PowerEditor.
- Create independent Long and Short trading systems.
- Learn to use 3D Smart View to create stable and robust trading systems.
- Review actual trading systems including, CCI Spike, Variable Detrend, and DZ%R.

Stage 3: Evaluating

- Learn to use Portfolio Maximizer to critique trading performance.
- System return analysis.
- Run-up and drawdown analysis.
- Winning and losing trade analysis.
- Multiple Reward/Risk ratios.
- Time analysis.
- Annual & monthly trading summery.

Stage 4: Improving

- Learn to place intelligent protective stops using John Sweeney's Maximum Adverse Excursion (MAE).
- Adjust systems based on entry and exit efficiency analysis.
- Review a variety of Money Management techniques.
- Learn to use money management strategies based using Money Manager.
- Learn to use filtering techniques to improve trading performance.

Stage 5: Applying

- Learn to fine-tune the trading process for real world trading.
- Use Time and Price Adjustments Analysis to assist intuitive trading.
- Learn proper order entry techniques.

Stage 6: Monitoring

- Recognize the early warning signals of a failing trading system.
- Understand and implement equity curve analysis, featuring the Underwater Equity Curve.
- Adjusting trading parameters over time using 3D Optimization charts.

Who should attend this intensive three-day Workshop?

Traders and Investors interested in:

- A variety of technical analysis methodologies.
- The basic operations of TradeStation®/SuperCharts®.
- Building mechanical trading systems from the ground up.
- Evaluating performance results using Portfolio Maximizer™.
- Improving trading performance with 3D Smart View and a variety of Money Management techniques.
- Learning the art of trading Index Futures, OEX Options and Mutual Funds.

What do Workshop participants receive?

Look at what you receive by attending:

- Three days of the personalized training.
- A comprehensive seminar manual.
- Seminar time to evaluate personal trading systems ($399.00 Value).

Each workshop is limited to five (5) participants to allow for intensive hands-on training. Reserve your seat today. Contact RINA Systems for more information.

RINA Systems, Inc.
7854 Weavers Lane
Maineville, OH. 45039

Tel: 513-772-7462
Fax: 513-771-7185
Web: www.rinasystems.com